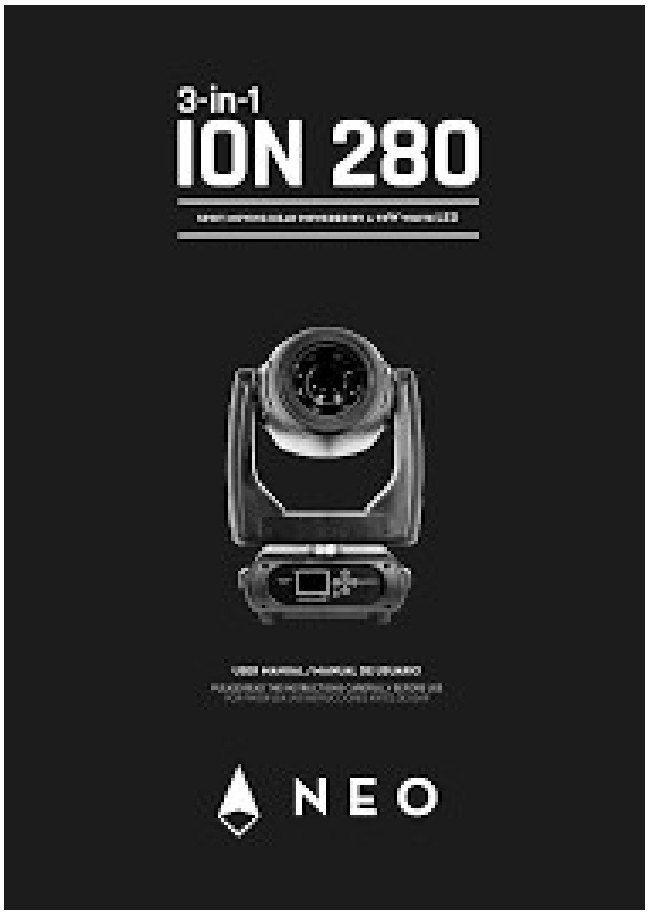
DMX REFERENCE

ION 280 3-1 ok01

Neo ION 280 3-1

User Test



Manufacturer	User Test
GDTF file	User_Test_ION_280_3-1_ok01_21299.gdtf
GDTF revision	Final 1 · 2022-01-24
Generated	2026-11-24

Contents

1 About this manual 2
2 Quick reference 2
3 Safety instructions 3
4 Product description 4
5 Installation 4
6 Connections 4
7 Operation 5
8 Functions at a glance 6
9 DMX channels 8
Mode Default 8
10 Technical specifications 12
11 Maintenance and cleaning 12
12 Troubleshooting 13
13 Disposal 13

1 About this manual

This document describes the Neo ION 280 3-1 by User Test. It was compiled from the GDTF file User_Test_ION_280_3-1_ok01_21299.gdtf from the GDTF-Share library.

File revision: “Final 1”.

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 User Test; 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	17 kg

DMX modes

Mode	Channels	Units in one universe	First start addresses
Default	23	22	1, 24, 47, 70, ...

No light? Check these channels

- Default: CH 9 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

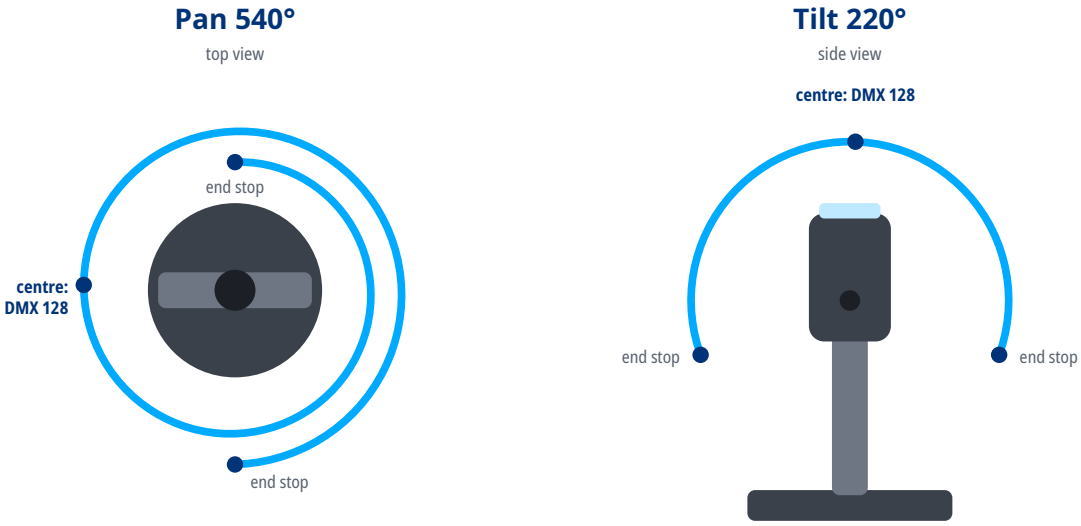
- Strobe and fast flashing light effects can trigger epileptic seizures in susceptible people (photosensitive epilepsy) and can cause nausea or disorientation.
- Inform the audience and performers in advance that strobe effects will be used, for example with a notice at the entrance, and do not use them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



5 Installation

⚠ WARNING

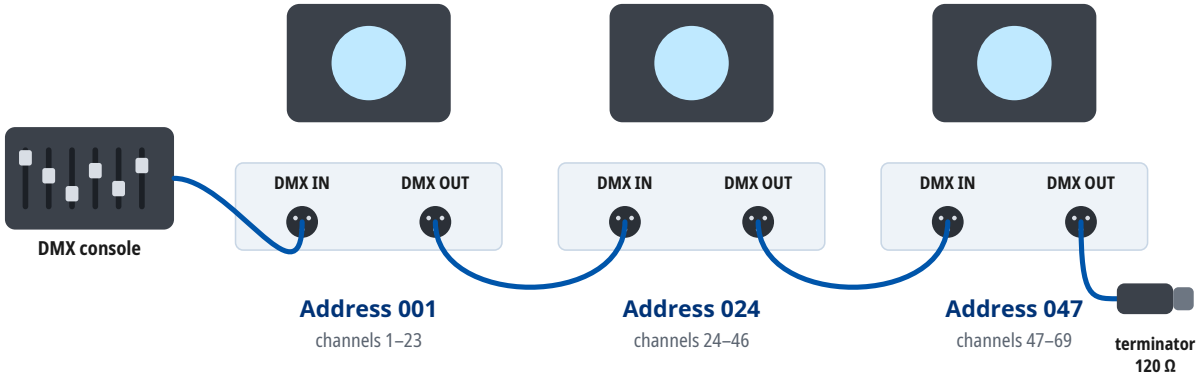
- Rigging must be carried out only by qualified persons in accordance with applicable regulations, in particular those for work at height.
- The supporting structure and fixings must safely carry the weight of all suspended devices; verify their load capacity in advance.
- Weight of the device: 17 kg.
- 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 Default: every unit occupies 23 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 “Default”: 23.
- 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 “Default”, you can use, for example, the start addresses 1, 24, 47, 70.
- The DMX mode set on the device must match the fixture profile (personality) used in the controller.

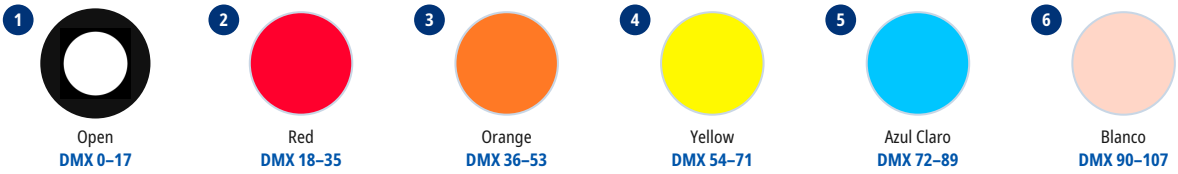
8 Functions at a glance

Functions in each DMX mode

	Default 23 channels
Pan / Tilt	1, 3
Dimmer	9
Shutter / strobe	8 *
Color wheel	10, 11
Gobo wheel	12, 13, 16, 17
Gobo rotation	14, 15
Prism	18, 19
Zoom	22
Focus	20, 21

* The function works only when another channel switches it on; see the DMX table.

Gobo wheel 1



1 Open DMX 0–17
2 Red DMX 18–35
3 Orange DMX 36–53
4 Yellow DMX 54–71
5 Azul Claro DMX 72–89
6 Blanco DMX 90–107
7 Celeste DMX 108–125
8 Lima DMX 126–143
9 UV DMX 144–161
10 Rojo Claro DMX 162–179
11 Magenta DMX 180–197
12 Aquamarine DMX 198–215
13 Ambar DMX 216–233
14 Blue DMX 234–252

Gobo wheel 2



1 Beam OPEN DMX 0–3
2 1 DMX 26–50
3 2 DMX 51–75
4 3 DMX 76–100
5 4 DMX 101–125
6 5 DMX 126–150
7 6 DMX 151–175
8 7 DMX 176–200
9 8 DMX 201–225
10 9 DMX 226

Gobo wheel 3



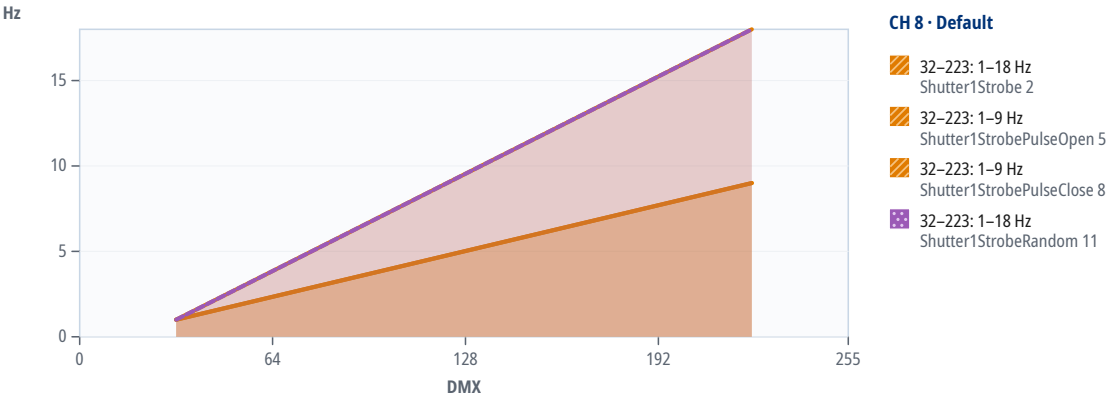
1 Open DMX 0–16
2 Gobo 1 al 14 DMX 17–32
3 2 DMX 33–49
4 3 DMX 50–66
5 4 DMX 67–83
6 5 DMX 84–100
7 6 DMX 101–117
8 7 DMX 118–134
9 8 DMX 135–151
10 9 DMX 152–168
11 10 DMX 169–185
12 11 DMX 186–202
13 12 DMX 203–219
14 13 DMX 220–236
15 14 DMX 237

Prism



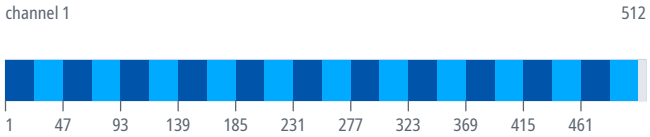
1 Open DMX 0–64
2 Prisma 3 DMX 64–128
3 Prisma 8 DMX 128–192
4 Frost DMX 192–255

Strobe rate



9 DMX channels

Units in one DMX universe



Default
23 channels

up to 22 units
last address 484

Start addresses of 20 units in the mode “Default”

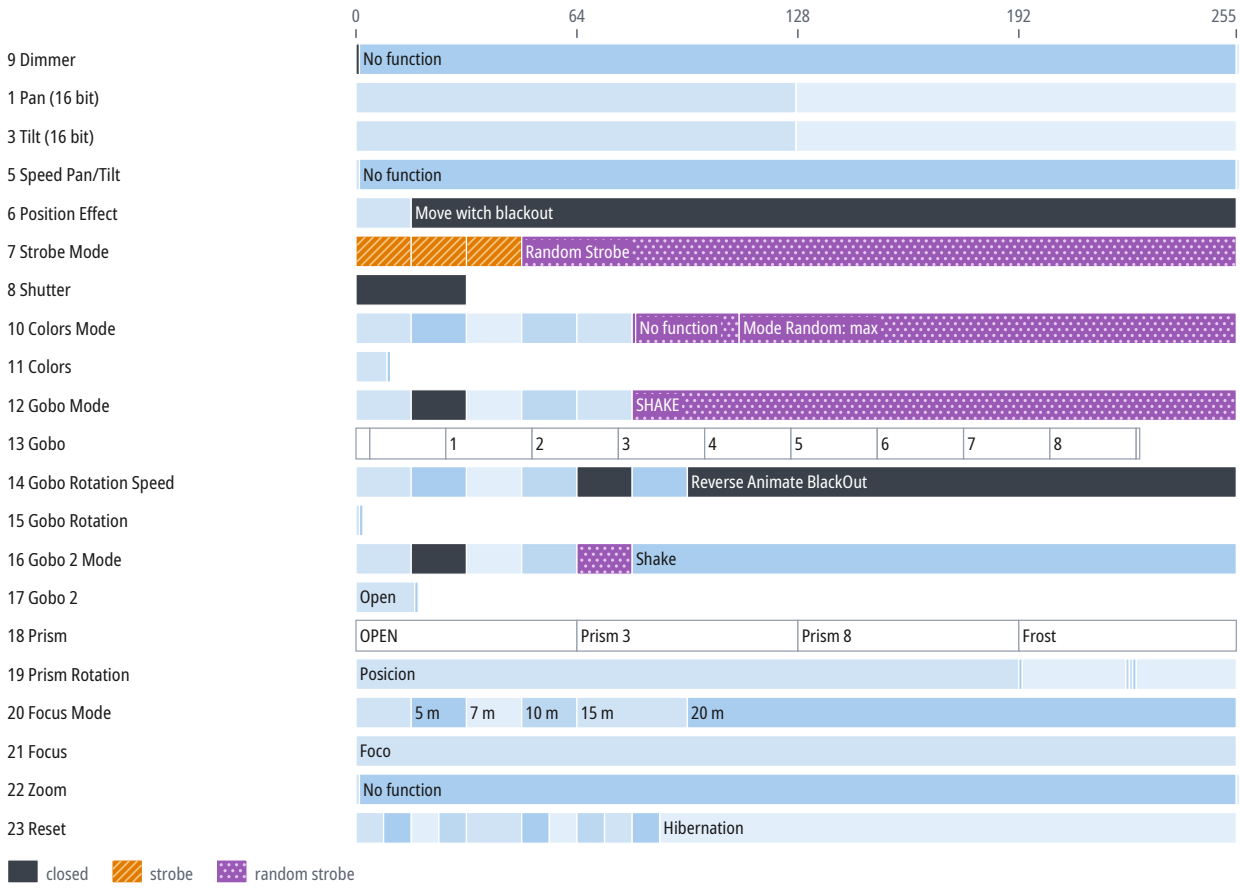
Unit	Start address	Unit	Start address	Unit	Start address	Unit	Start address
1	1	6	116	11	231	16	346
2	24	7	139	12	254	17	369
3	47	8	162	13	277	18	392
4	70	9	185	14	300	19	415
5	93	10	208	15	323	20	438

Mode Default

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 9 Dimmer above 0. The GDTF file gives these values for a console's Highlight function: CH 8 Shutter 255, CH 9 Dimmer 255.

Channel functions at a glance



CH	Function	DMX	Description
1	Pan	0–127	Pan 1
		128	Home
		128–255	Pan 1
2	Pan Fine	0–255	Fine adjustment of CH 1
3	Tilt	0–127	Tilt 1
		128	Home
		128–255	Tilt 1
4	Tilt Fine	0–255	Fine adjustment of CH 3
5	Speed Pan/Tilt	0	Slow
		1–254	No function
		255	Fast
6	Position Effect	0–15	Normal
		16–255	Move witch blackout
7	Strobe Mode	0–15	Mode 1
		16–31	Pulse Foward
		32–47	Pulse reverse
		48–255	Random Strobe
8	Shutter		When CH 7 is 0–15:
		0–31	Shutter 1: close
		32	Shutter 1 Strobe: min
		33–222	No function
		223	Shutter 1 Strobe: max
		224–255	Shutter 1: open
9	Dimmer	0	Closed
		1–254	No function
		255	Open
10	Colors Mode	0–15	Indexed
		16–31	Index witch backout
		32–47	Foward spin
		48–63	Reverse Spin
		64–79	Continuos
		80	Mode Random: min
		81–110	No function
		111–255	Mode Random: max
11	Colors		When CH 10 is 16–31:
		0–8	OPEN
		9–255	Color 1 al 13
12	Gobo Mode	0–15	INDEXED
		16–31	Index Con Blackout
		32–47	Foward Spin
		48–63	Reverse Spin

CH	Function	DMX	Description
12	Gobo Mode (continued)	64–79	Continuos
		80–255	SHAKE
13	Gobo		When CH 12 is 0–15:
		0–3	Beam OPEN
		4–25	Spot Open
		26–50	1
		51–75	2
		76–100	3
		101–125	4
		126–150	5
		151–175	6
		176–200	7
		201–225	8
		226–255	9
14	Gobo Rotation Speed	0–15	Continuos
		16–31	Foward
		32–47	Reverse
		48–63	Foward Animate
		64–79	Foward Animate BlackOut
		80–95	Reverse Animate
		96–255	Reverse Animate BlackOut
15	Gobo Rotation		When CH 14 is 0–15:
		0	0 a 360
		1–255	No function
16	Gobo 2 Mode	0–15	INDEXED
		16–31	Index con Black Out
		32–47	Foward Spin
		48–63	Reverse Spin
		64–79	Continuos
		80–255	Shake
17	Gobo 2		When CH 16 is 16–31:
		0–16	Open
		17–255	Gobo 1 al 14
18	Prism	0–63	OPEN
		64–127	Prism 3
		128–191	Prism 8
		192–255	Frost
19	Prism Rotation	0–191	Posicion (360°)
		192	Foward: Min Spin
		193–222	Foward: No Feature
		223	Foward: Max Spin
		224	Reverse: Max Spin

CH	Function	DMX	Description
19	Prism Rotation (continued)	225	Reverse: Min Spin
		226–255	Reverse: No Feature
20	Focus Mode	0–15	Continuos
		16–31	5 m
		32–47	7 m
		48–63	10 m
		64–95	15 m
		96–255	20 m
21	Focus	0–255	Foco
22	Zoom	0	Min Zoom
		1–254	No function
		255	Max Zoom
23	Reset		Reset Movil
		0–7	Normal
		8–15	Reset All
		16–23	Pan Tilt Reset
		24–31	Color Reset
		32–47	Gobo Reset
		48–55	Otros Reset
		56–63	Display Off
		64–71	Display On
		72–79	Lamp Off
		80–87	Lamp On
		88–255	Hibernation

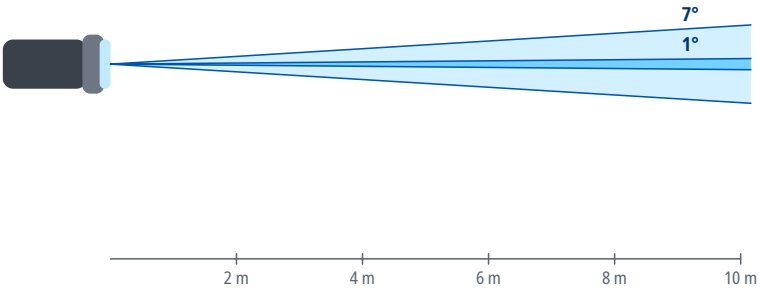
10 Technical specifications

Parameter	Value
Light	
Light source	tungsten lamp
Lamp power	1,000 W
Luminous flux	11,500 lm
Color temperature	7,800 K
Color rendering index (CRI)	90
Optics	
Zoom	1–7°
Movement	
Pan	540°
Tilt	220°
Dimensions and construction	
Weight	17 kg
Operating environment	
Operating temperature	-10 to 45 °C

Speeds and ranges

Parameter	Value
Strobe frequency	1–18 Hz
Color wheel 1 rotation	up to 3.14 °/s (0.5 rpm)
Gobo wheel 2 rotation	up to 3.14 °/s (0.5 rpm)
Gobo wheel 3 rotation	up to 3.14 °/s (0.5 rpm)
Gobo 2 rotation	up to 9 °/s (1.5 rpm)
Prism rotation	up to 3.14 °/s (0.5 rpm)

Spot diameter



Distance	Ø 1°	Ø 7°
2 m	0.03 m	0.24 m
4 m	0.07 m	0.49 m
6 m	0.1 m	0.73 m
8 m	0.14 m	0.98 m
10 m	0.17 m	1.2 m
15 m	0.26 m	1.8 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.