DMX REFERENCE

Pulsar S2

ACME

Manufacturer	ACME
GDTF file	ACME_Pulsar_S2_85358.gdtf
GDTF revision	LDiscord DARN Updated Zoom and Infinite Pan / TILT Stop · 2025-02-03
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1 About this manual

This document describes the Pulsar S2 by ACME. It was compiled from the GDTF file ACME_Pulsar_S2_85358.gdtf from the GDTF-Share library.

File revision: “LDiscord DARN Updated Zoom and Infinite Pan / TILT Stop”.

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 ACME; 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
97 Channel	97	5	1, 98, 195, 292, ...

No light? Check these channels

- 97 Channel: CH 9 Dimmer 1 above 0; CH 11 Strobe 1 at 8–15, 132–139, 182–189, 232–239 or 248–255 “Open”; CH 12 Dimmer 2 above 0; CH 14 Strobe 2 at 8–15, 132–139, 182–189, 232–239 or 248–255 “Open”; CH 15 Dimmer 3 above 0; CH 17 Strobe 3 at 8–15, 132–139, 182–189, 232–239 or 248–255 “Open”; CH 18 Dimmer 4 above 0; CH 20 Strobe 4 at 8–15, 132–139, 182–189, 232–239 or 248–255 “Open”; CH 38 Dimmer above 0 (the same in each of the 9 cells); CH 74 Dimmer above 0 (the same in each of the 24 cells)


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.

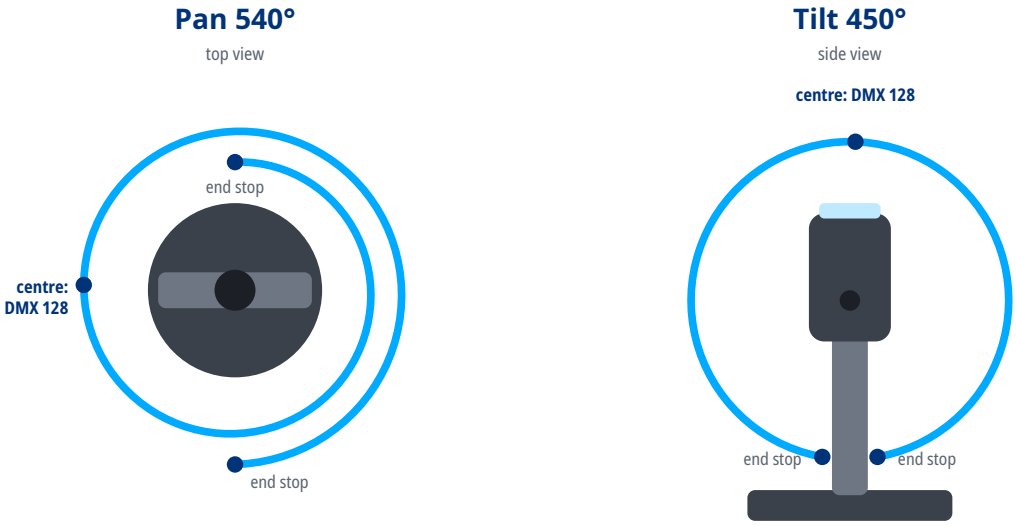
⚠ CAUTION

- 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.
> - 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.

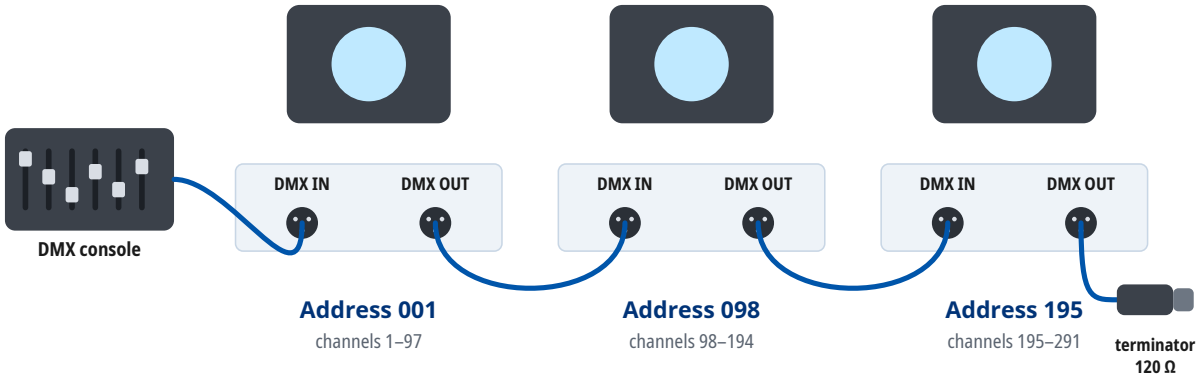
6 Connections

- 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 97 Channel: every unit occupies 97 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 “97 Channel”: 97.
- 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 “97 Channel”, you can use, for example, the start addresses 1, 98, 195, 292.
- The DMX mode set on the device must match the fixture profile (personality) used in the controller.

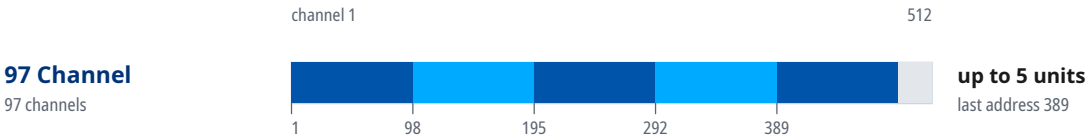
8 Functions at a glance

Functions in each DMX mode

	97 Channel 97 channels
Pan / Tilt	1, 3
Dimmer	37 channels (9–97)
Shutter / strobe	4× (11–20)
Color mixing	22–37, 47–73
Zoom	8
Pixel control	9 + 9 + 24 cells

9 DMX channels

Units in one DMX universe



Start addresses of 20 units in the mode “97 Channel”

Unit	Start address	Unit	Start address	Unit	Start address	Unit	Start address
1	1	6	U2 · 1	11	U3 · 1	16	U4 · 1
2	98	7	U2 · 98	12	U3 · 98	17	U4 · 98
3	195	8	U2 · 195	13	U3 · 195	18	U4 · 195
4	292	9	U2 · 292	14	U3 · 292	19	U4 · 292
5	389	10	U2 · 389	15	U3 · 389	20	U4 · 389

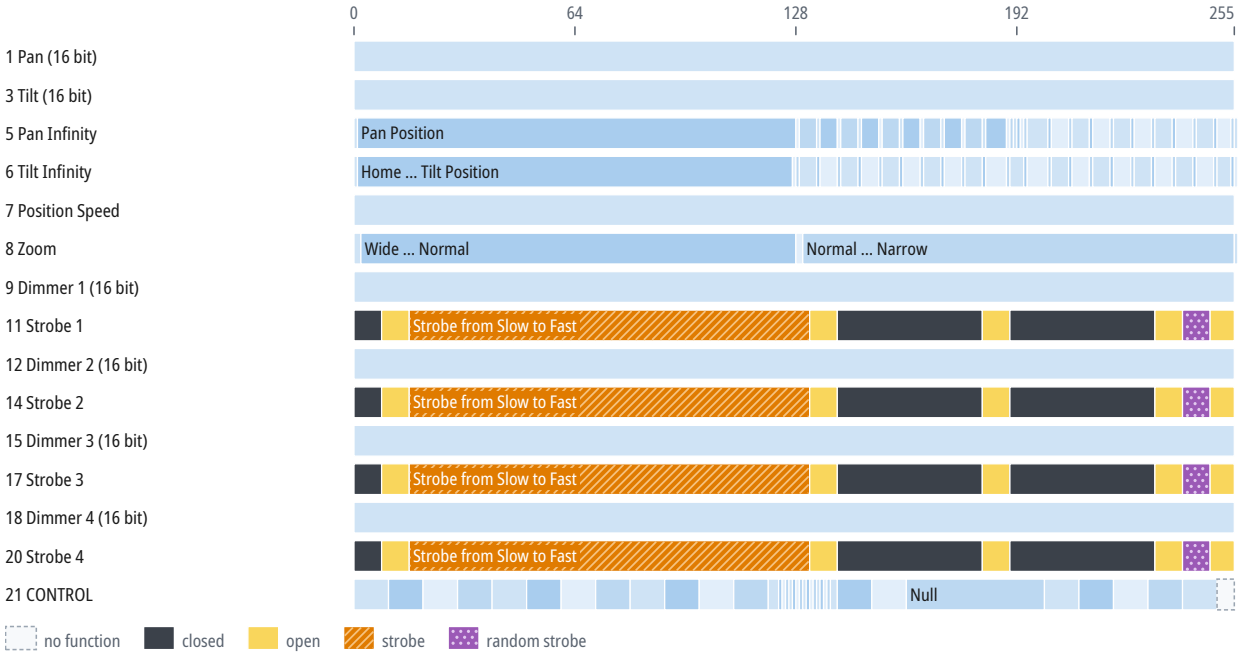
Where a DMX universe is full, the next units continue in the next universe: “U2 · 1” is address 1 in the second universe, counted from the universe of the first unit.

Mode 97 Channel

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 1 above 0; CH 11 Strobe 1 at 8–15, 132–139, 182–189, 232–239 or 248–255 “Open”; CH 12 Dimmer 2 above 0; CH 14 Strobe 2 at 8–15, 132–139, 182–189, 232–239 or 248–255 “Open”; CH 15 Dimmer 3 above 0; CH 17 Strobe 3 at 8–15, 132–139, 182–189, 232–239 or 248–255 “Open”; CH 18 Dimmer 4 above 0; CH 20 Strobe 4 at 8–15, 132–139, 182–189, 232–239 or 248–255 “Open”; CH 38 Dimmer above 0 (the same in each of the 9 cells); CH 74 Dimmer above 0 (the same in each of the 24 cells). The GDTF file gives these values for a console's Highlight function: CH 9 Dimmer 1 255, CH 12 Dimmer 2 255, CH 15 Dimmer 3 255, CH 18 Dimmer 4 255.

Channel functions at a glance



CH	Function	DMX	Description
1	Pan	0–255	540°
2	Pan Fine	0–255	Fine adjustment of CH 1
3	Tilt	0–255	450°
4	Tilt Fine	0–255	Fine adjustment of CH 3
5	Pan Infinity	0	Home
		1–127	Pan Position
		128	CCW 100%
		129–133	CCW 100% ... CCW 90%
		134	CCW 90%
		135–139	CCW 90% ... CCW 80%
		140	CCW 80%
		141–145	CCW 80% ... CCW 70%
		146	CCW 70%
		147–151	CCW 70% ... CCW 60%
		152	CCW 60%

CH	Function	DMX	Description
5	Pan Infinity (continued)	153–157	CCW 60% … CCW 50%
		158	CCW 50%
		159–163	CCW 50% … CCW 40%
		164	CCW 40%
		165–169	CCW 40% … CCW 30%
		170	CCW 30%
		171–175	CCW 30% … CCW 20%
		176	CCW 20%
		177–181	CCW 20% … CCW 10%
		182	CCW 10%
		183–188	CCW 10% … CCW 1%
		189	CCW 1%
		190	Pan Stop
		191	Pan Stop: Stop
		192	Pan Stop
		193	Pan CW
		194	CW 1%
		195–200	CW 1% … CW 10%
		201	CW 10%
		202–206	CW 10% … CW 20%
		207	CW 20%
		208–212	CW 20% … CW 30%
		213	CW 30%
		214–218	CW 30% … CW 40%
		219	CW 40%
		220–224	CW 40% … CW 50%
		225	CW 50%
		226–230	CW 50% … CW 60%
		231	CW 60%
		232–236	CW 60% … CW 70%
		237	CW 70%
		238–242	CW 70% … CW 80%
		243	CW 80%
		244–248	CW 80% … CW 90%
		249	CW 90%
		250–253	CW 90% … CW 100%
		254	CW 100%
		255	Pan CW
6	Tilt Infinity	0	Home
		1–126	Home … Tilt Position
		127	Tilt Position
		128	CW 100%

CH	Function	DMX	Description
6	Tilt Infinity (continued)	129–133	CW 100% … CW 90%
		134	CW 90%
		135–139	CW 90% … CW 80%
		140	CW 80%
		141–145	CW 80% … CW 70%
		146	CW 70%
		147–151	CW 70% … CW 60%
		152	CW 60%
		153–157	CW 60% … CW 50%
		158	CW 50%
		159–163	CW 50% … CW 40%
		164	CW 40%
		165–169	CW 40% … CW 30%
		170	CW 30%
		171–175	CW 30% … CW 20%
		176	CW 20%
		177–181	CW 20% … CW 10%
		182	CW 10%
		183–188	CW 10% … CW 1%
		189	CW 1%
		190–193	Tilt Stop: Stop
		194	CCW 1%
		195–200	CCW 1% … CCW 10%
		201	CCW 10%
		202–206	CCW 10% … CCW 20%
		207	CCW 20%
		208–212	CCW 20% … CCW 30%
		213	CCW 30%
		214–218	CCW 30% … CCW 40%
		219	CCW 40%
		220–224	CCW 40% … CCW 50%
		225	CCW 50%
		226–230	CCW 50% … CCW 60%
		231	CCW 60%
		232–236	CCW 60% … CCW 70%
		237	CCW 70%
		238–242	CCW 70% … CCW 80%
		243	CCW 80%
		244–248	CCW 80% … CCW 90%
		249	CCW 90%
		250–253	CCW 90% … CCW 100%
		254	CCW 100%

CH	Function	DMX	Description
6	Tilt Infinity (continued)	255	Tilt CCW
7	Position Speed	0–255	
8	Zoom	0–1	Wide
		2–127	Wide ... Normal
		128–129	Normal
		130–254	Normal ... Narrow
		255	Narrow
9	Dimmer 1	0–255	
10	Dimmer 1 Fine	0–255	Fine adjustment of CH 9
11	Strobe 1	0–7	Close
		8–15	Open
		16–131	Strobe from Slow to Fast
		132–139	Open
		140–181	Fast Open Slow Close from Slow to Fast
		182–189	Open
		190–231	Fast Close Slow Open from Slow to Fast
		232–239	Open
		240–247	Random Strobe from Slow to Fast
		248–255	Open
12	Dimmer 2	0–255	
13	Dimmer 2 Fine	0–255	Fine adjustment of CH 12
14	Strobe 2	0–7	Close
		8–15	Open
		16–131	Strobe from Slow to Fast
		132–139	Open
		140–181	Fast Open Slow Close from Slow to Fast
		182–189	Open
		190–231	Fast Close Slow Open from Slow to Fast
		232–239	Open
		240–247	Random Strobe from Slow to Fast
		248–255	Open
15	Dimmer 3	0–255	
16	Dimmer 3 Fine	0–255	Fine adjustment of CH 15
17	Strobe 3	0–7	Close
		8–15	Open
		16–131	Strobe from Slow to Fast
		132–139	Open
		140–181	Fast Open Slow Close from Slow to Fast
		182–189	Open
		190–231	Fast Close Slow Open from Slow to Fast
		232–239	Open
		240–247	Random Strobe from Slow to Fast

CH	Function	DMX	Description
17	Strobe 3 (continued)	248–255	Open
18	Dimmer 4	0–255	
19	Dimmer 4 Fine	0–255	Fine adjustment of CH 18
20	Strobe 4	0–7	Close
		8–15	Open
		16–131	Strobe from Slow to Fast
		132–139	Open
		140–181	Fast Open Slow Close from Slow to Fast
		182–189	Open
		190–231	Fast Close Slow Open from Slow to Fast
		232–239	Open
		240–247	Random Strobe from Slow to Fast
		248–255	Open
21	CONTROL	0–9	Null
		10–19	Zoom Mode Short
		20–29	Zoom Mode Long
		30–39	Dimmer Curve Linear
		40–49	Dimmer Curve Square Law
		50–59	Dimmer Curve Inv Square Law
		60–69	Dimmer Curve S Curve
		70–79	Null
		80–89	Power Mode Auto
		90–99	Power Mode Quiet
		100–109	Led Frequency Enable
		110–119	Led Frequency Disable
		120–122	Null
		123	900hz
		124	1000hz
		125	1100hz
		126	1200hz
		127	1300hz
		128	1400hz
		129	1500hz
		130	2500hz
		131	4000hz
		132	5000hz
		133	6000hz
		134	10khz
		135	15khz
		136	20khz
		137	25khz
		138–139	Null

CH	Function	DMX	Description
21	CONTROL (continued)	140–149	Pan/Tilt Reset
		150–159	Effect Reset
		160–199	Null
		200–209	Reset All
		210–219	Dimmer Speed Fast
		220–229	Dimmer Speed Smooth
		230–239	Line Power Mode Off
		240–249	Line Power Mode On
		250–255	No Function
22	Red 1		Color RGB_R 1
		0–255	Color RGB_R 1
23	Green 1		Color RGB_G 1
		0–255	Color RGB_G 1
24	Blue 1		Color RGB_B 1
		0–255	Color RGB_B 1
25	White 1		Color RGB_W 1
		0–255	Color RGB_W 1
26	Red 2		Color RGB_R 1
		0–255	Color RGB_R 1
27	Green 2		Color RGB_G 1
		0–255	Color RGB_G 1
28	Blue 2		Color RGB_B 1
		0–255	Color RGB_B 1
29	White 2		Color RGB_W 1
		0–255	Color RGB_W 1
30	Red 3		Color RGB_R 1
		0–255	Color RGB_R 1
31	Green 3		Color RGB_G 1
		0–255	Color RGB_G 1
32	Blue 3		Color RGB_B 1
		0–255	Color RGB_B 1
33	White 3		Color RGB_W 1
		0–255	Color RGB_W 1
34	Red 4		Color RGB_R 1
		0–255	Color RGB_R 1
35	Green 4		Color RGB_G 1
		0–255	Color RGB_G 1
36	Blue 4		Color RGB_B 1
		0–255	Color RGB_B 1
37	White 4		Color RGB_W 1
		0–255	Color RGB_W 1
38	Dimmer 5	0–255	

CH	Function	DMX	Description
47	Red 5		Color RGB_R 1
		0–255	Color RGB_R 1
48	Green 5		Color RGB_G 1
		0–255	Color RGB_G 1
49	Blue 5		Color RGB_B 1
		0–255	Color RGB_B 1
74	Dimmer 14	0–255	

CH 38–46: 9 cells of 1 channel each. Every cell works as cell 1 in the table above (CH 38); the table below gives each cell's channel numbers.

Cell	Dimmer	Cell	Dimmer	Cell	Dimmer	Cell	Dimmer	Cell	Dimmer	Cell	Dimmer
1	38	2	39	3	40	4	41	5	42	6	43
7	44	8	45	9	46						

CH 47–73: 9 cells of 3 channels each. Every cell works as cell 1 in the table above (CH 47–49); the table below gives each cell's channel numbers.

Cell	Red	Green	Blue	Cell	Red	Green	Blue	Cell	Red	Green	Blue
1	47	48	49	2	50	51	52	3	53	54	55
4	56	57	58	5	59	60	61	6	62	63	64
7	65	66	67	8	68	69	70	9	71	72	73

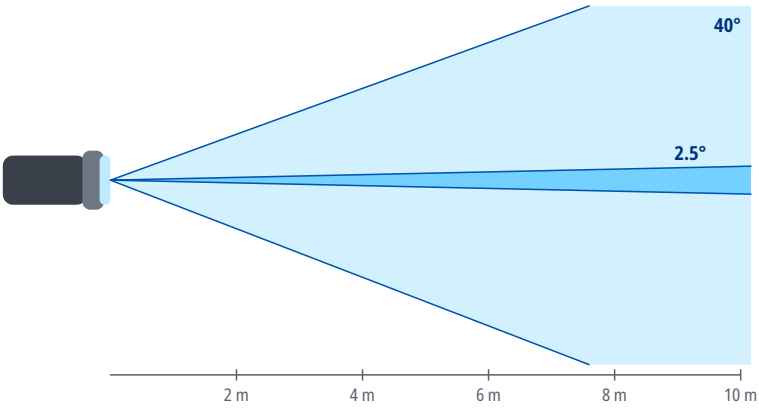
CH 74–97: 24 cells of 1 channel each. Every cell works as cell 1 in the table above (CH 74); the table below gives each cell's channel numbers.

Cell	Dimmer	Cell	Dimmer	Cell	Dimmer	Cell	Dimmer	Cell	Dimmer	Cell	Dimmer
1	74	2	75	3	76	4	77	5	78	6	79
7	80	8	81	9	82	10	83	11	84	12	85
13	86	14	87	15	88	16	89	17	90	18	91
19	92	20	93	21	94	22	95	23	96	24	97

10 Technical specifications

Parameter	Value
Light source	discharge lamp
Zoom	2.5–40°
Pan	540°
Tilt	450°
Operating temperature	0 to 40 °C

Spot diameter



Distance	Ø 2.5°	Ø 40°
2 m	0.09 m	1.5 m
4 m	0.17 m	2.9 m
6 m	0.26 m	4.4 m
8 m	0.35 m	5.8 m
10 m	0.44 m	7.3 m
15 m	0.65 m	10.9 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.

Problem	Remedy
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.