DMX REFERENCE

MagicRing R1

Ayrton MagicRing R1

Ayrton



Manufacturer	Ayrton
GDTF file	Ayrton_MagicRing_R1_133731.gdtf
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1 About this manual

This document describes the Ayrton MagicRing R1 by Ayrton. It was compiled from the GDTF file Ayrton_MagicRing_R1_133731.gdtf from the GDTF-Share library.

File revision: “V1.51 New_SVG”.

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 Ayrton; 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
Extended	44	11	1, 45, 89, 133, ...
Standard	20	25	1, 21, 41, 61, ...
Basic	18	28	1, 19, 37, 55, ...

No light? Check these channels

- Extended: CH 8 Strobe at 32–63; CH 9 Dimmer above 0; CH 12 Color Preset Dimmer above 0
- Standard: CH 12 Strobe at 32–63; CH 13 Dimmer above 0; CH 16 Color Preset Dimmer above 0
- Basic: CH 10 Strobe at 32–63; CH 11 Dimmer above 0; CH 14 Color Preset 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.

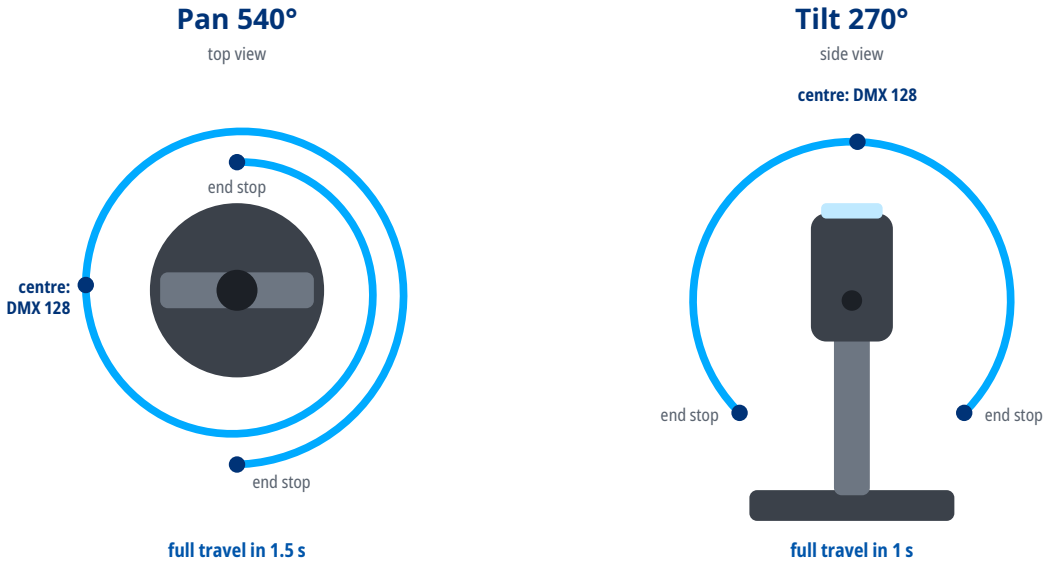
⚠ CAUTION

- 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



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.
> - 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.

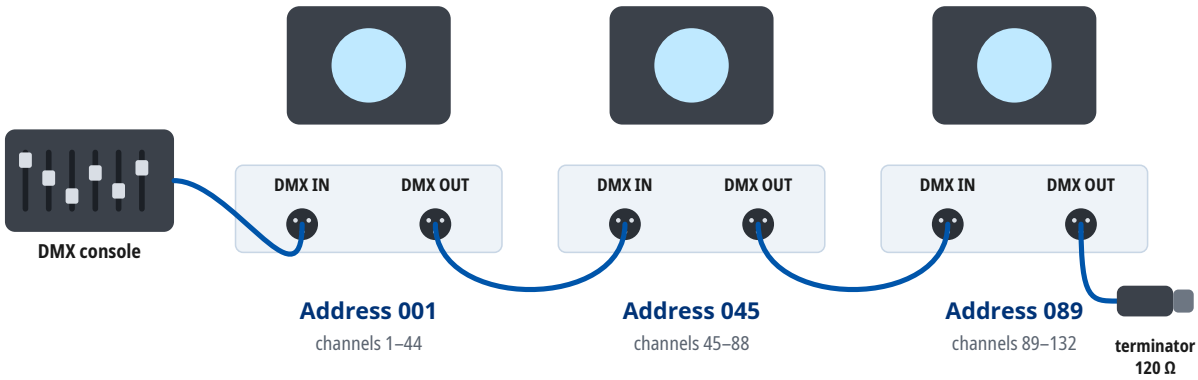
6 Connections

- 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 Extended: every unit occupies 44 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

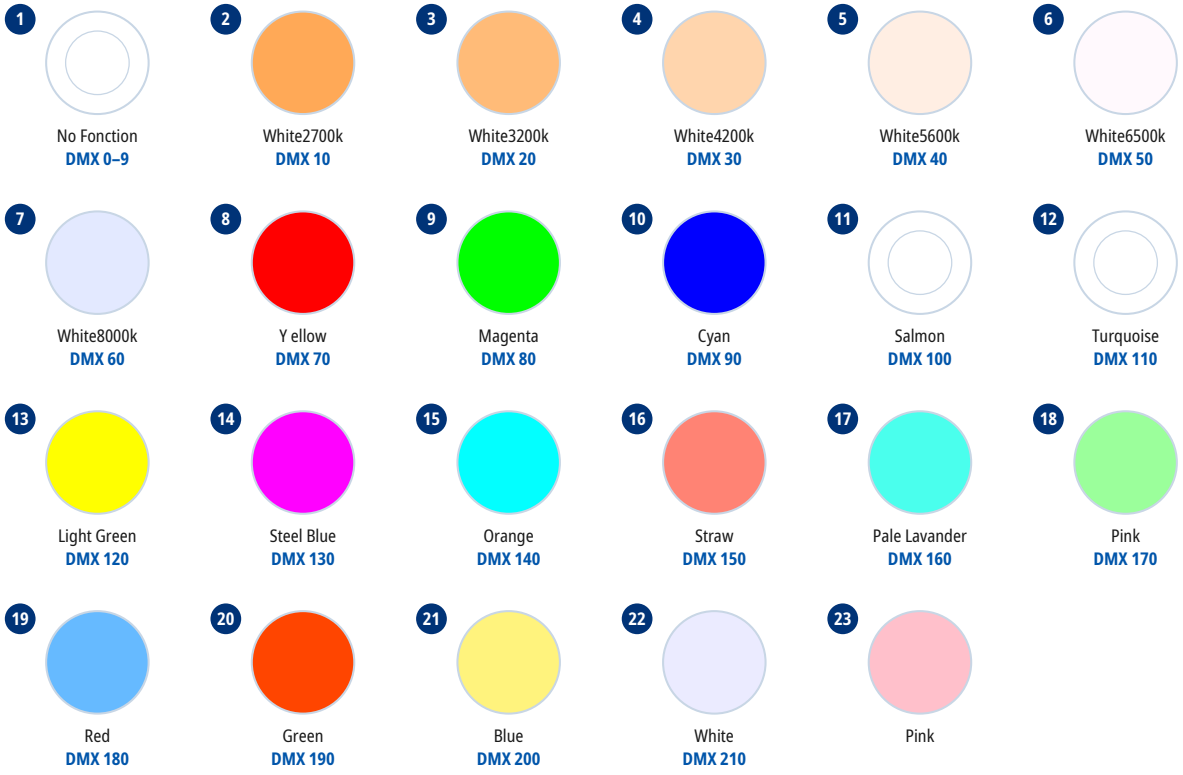
- The device occupies as many consecutive channels in the DMX universe as the selected DMX mode uses, starting at the set start address.
- Number of channels occupied in the DMX mode “Extended”: 44.
- Choose start addresses so that the channels of individual devices do not overlap and the last occupied 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 “Extended”, you can use, for example, the start addresses 1, 45, 89, 133.
- 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

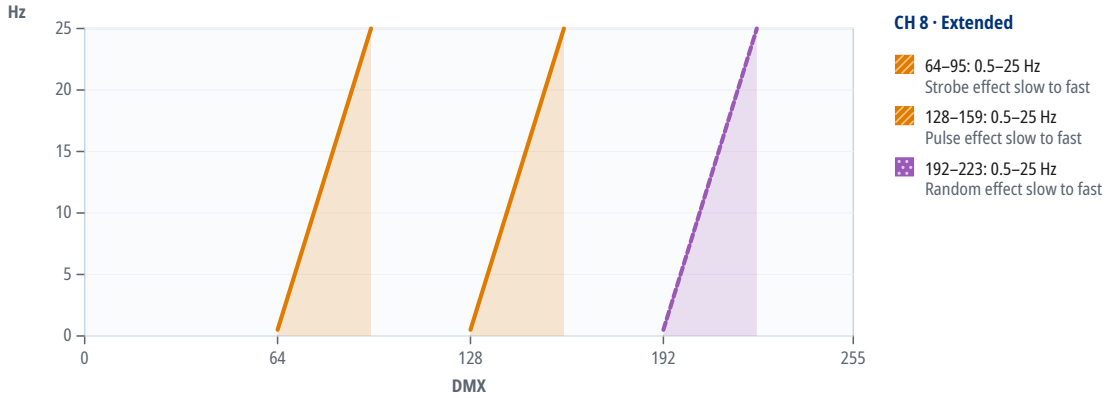
Functions in each DMX mode

	Extended 44 channels	Standard 20 channels	Basic 18 channels
Pan / Tilt	**1, 3, 6, 7**	**1, 3, 6, 7**	**1, 2, 4, 5**
Pan / Tilt resolution	16 bit	16 bit	8 bit
Dimmer	**9**	**13**	**11**
Shutter / strobe	**8**	**12**	**10**
Color mixing	**16–43**	**8–11**	**6–9**
Color wheel	**11**	**15**	**13**
Effects / macros	**10**	**14**	**12**

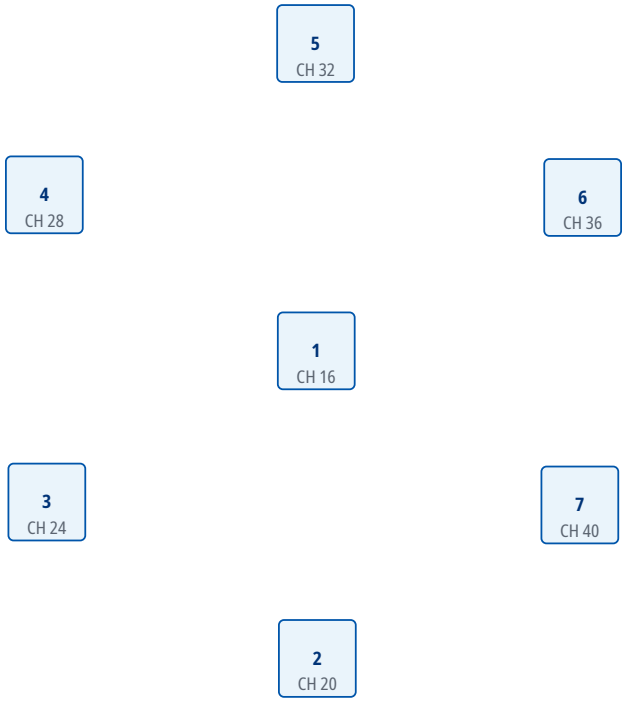
Color wheel



Strobe rate



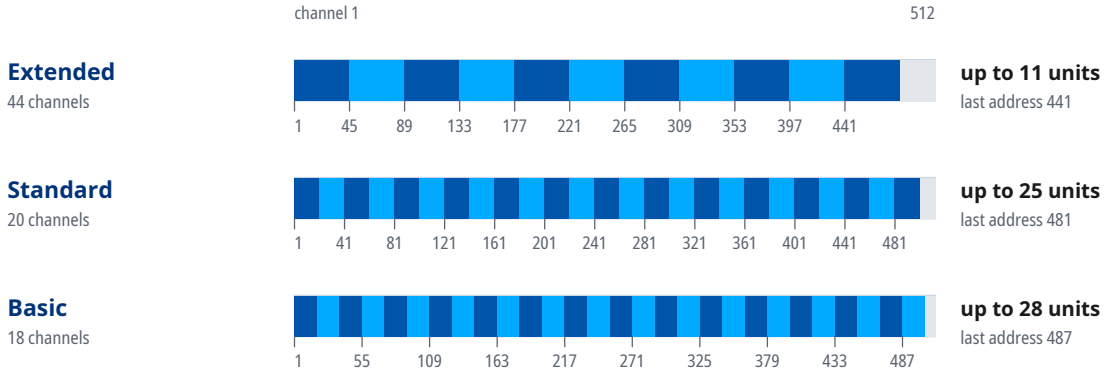
Cells (pixels)



7 cells where the GDTF file places them (seen from above), numbered by their first DMX channel (CH) in the mode “Extended”.

9 DMX channels

Units in one DMX universe



Start addresses of 20 units in the mode “Extended”

Unit	Start address	Unit	Start address	Unit	Start address	Unit	Start address
1	1	6	221	11	441	16	U2 · 177
2	45	7	265	12	U2 · 1	17	U2 · 221
3	89	8	309	13	U2 · 45	18	U2 · 265
4	133	9	353	14	U2 · 89	19	U2 · 309
5	177	10	397	15	U2 · 133	20	U2 · 353

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 Extended

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 8 Strobe at 32–63; CH 9 Dimmer above 0; CH 12 Color Preset Dimmer above 0. The GDTF file gives these values for a console's Highlight function: CH 8 Strobe 32, CH 9 Dimmer 255, CH 11 Colors 0, CH 12 Color Preset Dimmer 0, CH 16 Red 1 255, CH 17 Green 1 255, CH 18 Blue 1 255, CH 19 White 1 255, CH 20 Red 2 255, CH 21 Green 2 255, CH 22 Blue 2 255, CH 23 White 2 255, CH 24 Red 3 255, CH 25 Green 3 255, CH 26 Blue 3 255, CH 27 White 3 255, CH 28 Red 4 255, CH 29 Green 4 255, CH 30 Blue 4 255, CH 31 White 4 255, CH 32 Red 5 255, CH 33 Green 5 255, CH 34 Blue 5 255, CH 35 White 5 255, CH 36 Red 6 255, CH 37 Green 6 255, CH 38 Blue 6 255, CH 39 White 6 255, CH 40 Red 7 255, CH 41 Green 7 255, CH 42 Blue 7 255, CH 43 White 7 255.

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	0–255	
6	Pan Rotation	0–63	Stop by SpinOut
		64–127	Stop by ShortCut
		128	CW max
		129–188	CW max ... CW min
		189	CW min
		190–193	Pause

CH	Function	DMX	Description
6	Pan Rotation (continued)	194	CCW min
		195–254	CCW min ... CCW max
		255	CCW max
7	Tilt Rotation	0–63	Stop by SpinOut
		64–127	Stop by ShortCut
		128	CW max
		129–188	CW max ... CW min
		189	CW min
		190–193	Pause
		194	CCW min
		195–254	CCW min ... CCW max
		255	CCW max
8	Strobe	0–31	LED OFF
		32–63	LED ON
		64	Strobe effect slow to fast: Min
		65–79	Strobe effect slow to fast: Min ... Mid
		80	Strobe effect slow to fast: Mid
		81–94	Strobe effect slow to fast: Mid ... Max
		95	Strobe effect slow to fast: Max
		96–127	LED ON 1
		128	Pulse effect slow to fast: Min
		129–144	Pulse effect slow to fast: Min ... Mid
		145	Pulse effect slow to fast: Mid
		146–158	Pulse effect slow to fast: Mid ... Max
		159	Pulse effect slow to fast: Max
		160–191	LED ON 2
		192	Random effect slow to fast: Min
		193–209	Random effect slow to fast: Min ... Mid
		210	Random effect slow to fast: Mid
		211–222	Random effect slow to fast: Mid ... Max
		223	Random effect slow to fast: Max
		224–255	LED ON 3
9	Dimmer	0–255	
10	Color Macro	0–255	
11	Colors	0–9	No Fonction
		10	White2700k
		11–19	White2700k ... White3200k
		20	White3200k
		21–29	White3200k ... White4200k
		30	White4200k
		31–39	White4200k ... White5600k
		40	White5600k

CH	Function	DMX	Description
11	Colors (continued)	41–49	White5600k ... White6500k
		50	White6500k
		51–59	White6500k ... White8000k
		60	White8000k
		61–69	White8000k ... Y ellow
		70	Y ellow
		71–79	Y ellow ... Magenta
		80	Magenta
		81–89	Magenta ... Cyan
		90	Cyan
		91–99	Cyan ... Salmon
		100	Salmon
		101–109	Salmon ... Turquoise
		110	Turquoise
		111–119	Turquoise ... Light Green
		120	Light Green
		121–129	Light Green ... Steel Blue
		130	Steel Blue
		131–139	Steel Blue ... Orange
		140	Orange
		141–149	Orange ... Straw
		150	Straw
		151–159	Straw ... Pale Lavander
		160	Pale Lavander
		161–169	Pale Lavander ... Pink
		170	Pink
		171–179	Pink ... Red
		180	Red
		181–189	Red ... Green
		190	Green
		191–199	Green ... Blue
		200	Blue
		201–209	Blue ... White
		210	White
		211–255	Color 1 1
12	Color Preset Dimmer	0–255	
13	Chase Patterns	0–255	
14	Chase Speed	0	<<<
		1–49	<<< ... <<
		50	<<
		51–119	<< ... <
		120	<

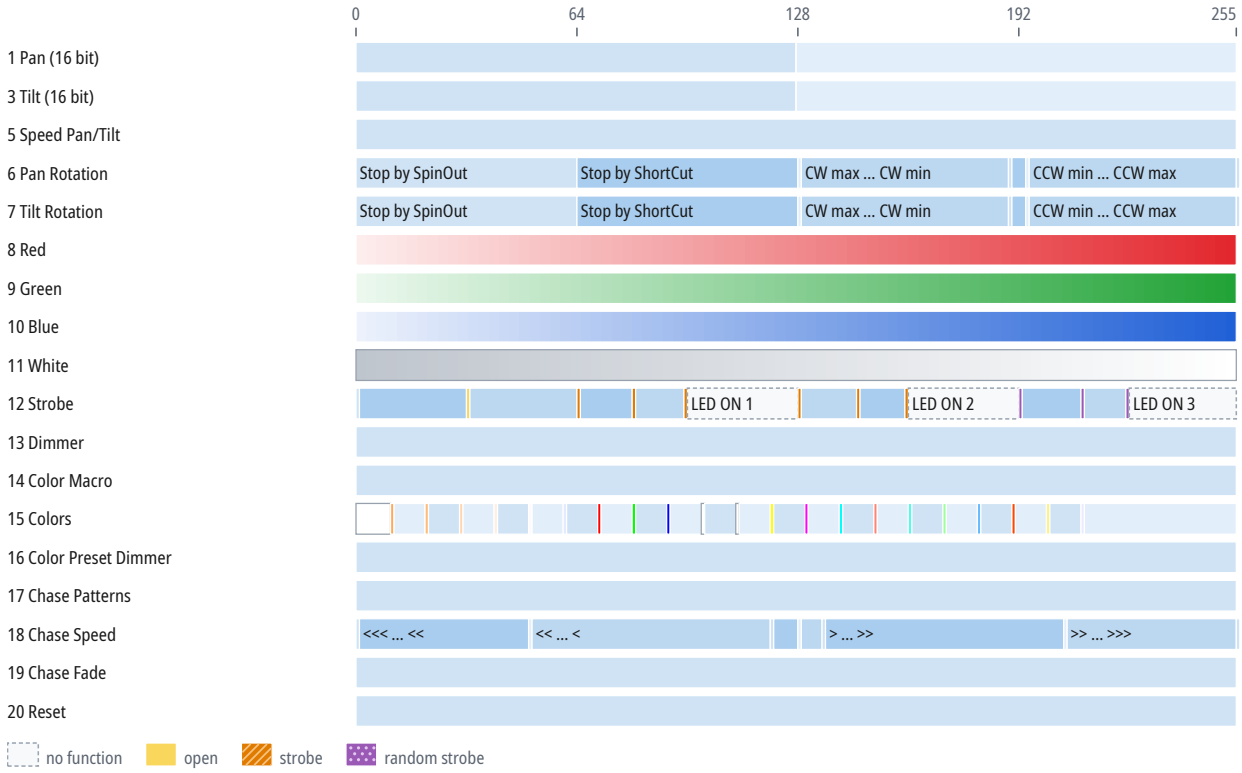
CH	Function	DMX	Description
14	Chase Speed (continued)	121–127	< ... Stop(=0)
		128	Stop(=0)
		129–134	Stop(=0) ... >
		135	>
		136–204	> ... >>
		205	>>
		206–254	>> ... >>>
		255	>>>
15	Chase Fade	0–255	
16	Red 1	0–255	
17	Green 1	0–255	
18	Blue 1	0–255	
19	White 1	0–255	
20	Red 2	0–255	
21	Green 2	0–255	
22	Blue 2	0–255	
23	White 2	0–255	
24	Red 3	0–255	
25	Green 3	0–255	
26	Blue 3	0–255	
27	White 3	0–255	
28	Red 4	0–255	
29	Green 4	0–255	
30	Blue 4	0–255	
31	White 4	0–255	
32	Red 5	0–255	
33	Green 5	0–255	
34	Blue 5	0–255	
35	White 5	0–255	
36	Red 6	0–255	
37	Green 6	0–255	
38	Blue 6	0–255	
39	White 6	0–255	
40	Red 7	0–255	
41	Green 7	0–255	
42	Blue 7	0–255	
43	White 7	0–255	
44	Reset	0–255	

Mode Standard

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 12 Strobe at 32–63; CH 13 Dimmer above 0; CH 16 Color Preset Dimmer above 0. The GDTF file gives these values for a console's Highlight function: CH 8 Red 255, CH 9 Green 255, CH 10 Blue 255, CH 11 White 255, CH 12 Strobe 32, CH 13 Dimmer 255, CH 15 Colors 0, CH 16 Color Preset Dimmer 0.

Channel functions at a glance



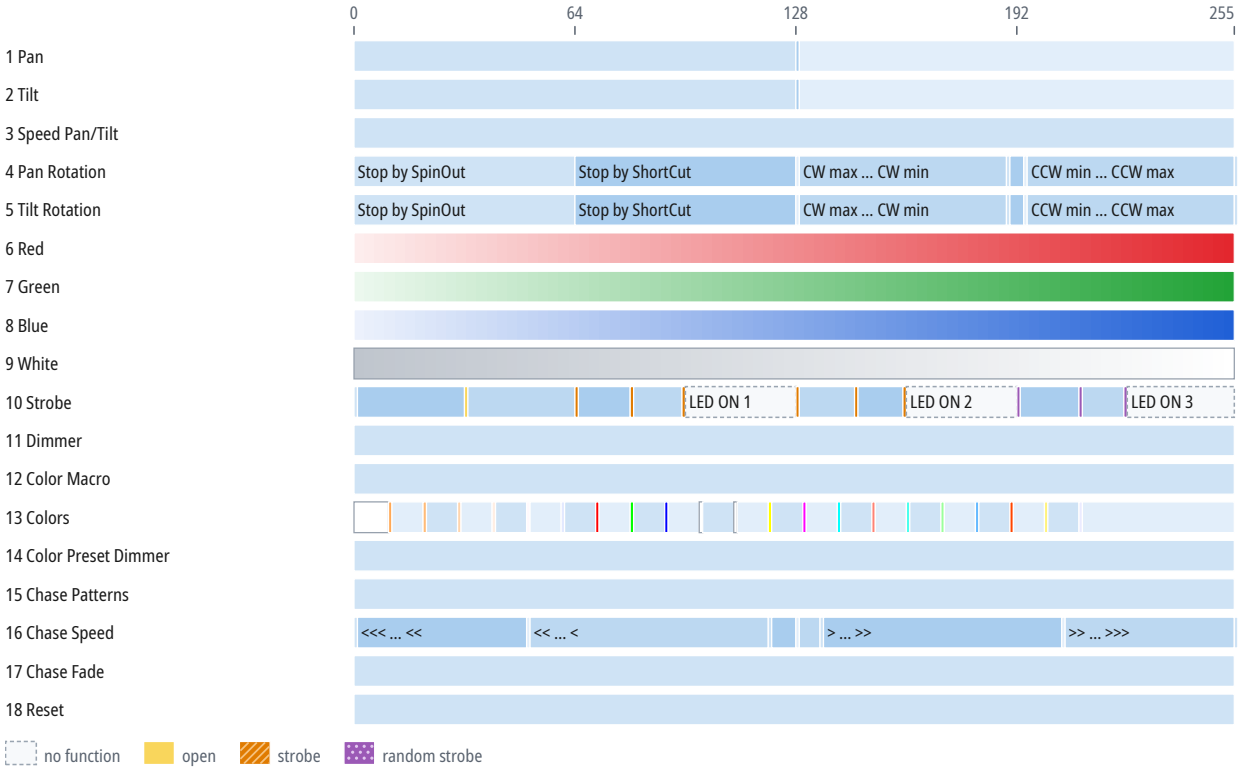
CH	Function	DMX	Description
1	Pan		Same as CH 1 in the mode “Extended” (p. 10)
2	Pan Fine	0–255	Fine adjustment of CH 1
3	Tilt		Same as CH 3 in the mode “Extended” (p. 10)
4	Tilt Fine	0–255	Fine adjustment of CH 3
5	Speed Pan/Tilt	0–255	
6	Pan Rotation		Same as CH 6 in the mode “Extended” (p. 10)
7	Tilt Rotation		Same as CH 7 in the mode “Extended” (p. 11)
8	Red	0–255	
9	Green	0–255	
10	Blue	0–255	
11	White	0–255	
12	Strobe		Same as CH 8 in the mode “Extended” (p. 11)
13	Dimmer	0–255	
14	Color Macro	0–255	
15	Colors		Same as CH 11 in the mode “Extended” (p. 11)

CH	Function	DMX	Description
16	Color Preset Dimmer	0–255	
17	Chase Patterns	0–255	
18	Chase Speed		Same as CH 14 in the mode “Extended” (p. 12)
19	Chase Fade	0–255	
20	Reset	0–255	

Mode Basic

If the device receives DMX in this mode but gives no light, check these channels: CH 10 Strobe at 32–63; CH 11 Dimmer above 0; CH 14 Color Preset Dimmer above 0. The GDTF file gives these values for a console's Highlight function: CH 6 Red 255, CH 7 Green 255, CH 8 Blue 255, CH 9 White 255, CH 10 Strobe 32, CH 11 Dimmer 255, CH 13 Colors 0, CH 14 Color Preset Dimmer 0.

Channel functions at a glance



CH	Function	DMX	Description
1	Pan	0–127	Pan 1
		128	Home
		129–255	Pan 1
2	Tilt	0–127	Tilt 1
		128	Home
		129–255	Tilt 1
3	Speed Pan/Tilt	0–255	
4	Pan Rotation		Same as CH 6 in the mode “Extended” (p. 10)
5	Tilt Rotation		Same as CH 7 in the mode “Extended” (p. 11)
6	Red	0–255	

CH	Function	DMX	Description
7	Green	0–255	
8	Blue	0–255	
9	White	0–255	
10	Strobe		Same as CH 8 in the mode “Extended” (p. 11)
11	Dimmer	0–255	
12	Color Macro	0–255	
13	Colors		Same as CH 11 in the mode “Extended” (p. 11)
14	Color Preset Dimmer	0–255	
15	Chase Patterns	0–255	
16	Chase Speed		Same as CH 14 in the mode “Extended” (p. 12)
17	Chase Fade	0–255	
18	Reset	0–255	

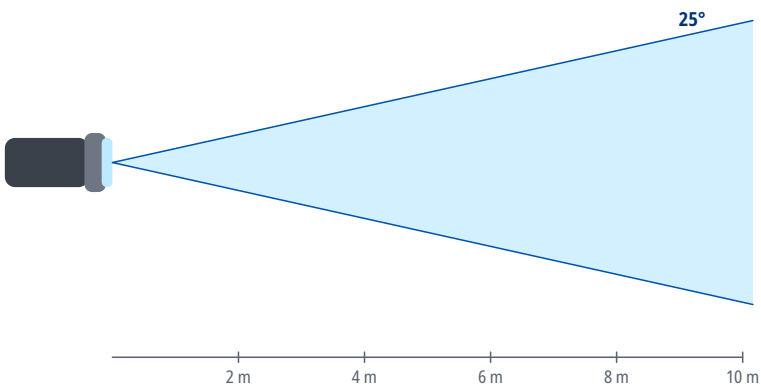
10 Technical specifications

Parameter	Value
Light source	LED
Pan	540°
Tilt	270°
RDM	yes (manufacturer ID 0x4174, device model ID 0x0A89)
Operating temperature	0 to 40 °C

Speeds and ranges

Parameter	Value
Strobe frequency	0.5–25 Hz

Spot diameter



Distance	Ø 25°
2 m	0.89 m
4 m	1.8 m
6 m	2.7 m
8 m	3.5 m
10 m	4.4 m
15 m	6.7 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.