DMX REFERENCE

ACL 360 Matrix

Elation



Manufacturer	Elation
GDTF file	Elation_ACL_360_Matrix_165930.gdtf
GDTF revision	26-23-10 First Release · 2026-10-23
Generated	2026-11-24

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1 About this manual

This document describes the ACL 360 Matrix by Elation. It was compiled from the GDTF file Elation_ACL_360_Matrix_165930.gdtf from the GDTF-Share library.

File revision: “26-23-10 First Release”.

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 Elation; 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	5.2 kg

DMX modes

Mode	Channels	Units in one universe	First start addresses
Extended	115	4	1, 116, 231, 346
Stand	19	26	1, 20, 39, 58, ...
Basic	17	30	1, 18, 35, 52, ...

No light? Check these channels

- Extended: CH 108 Shutter at 32–63, 96–127 or 224–255
- Stand: CH 12 Shutter at 32–63, 96–127 or 224–255
- Basic: CH 10 Shutter at 32–63, 96–127 or 224–255


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

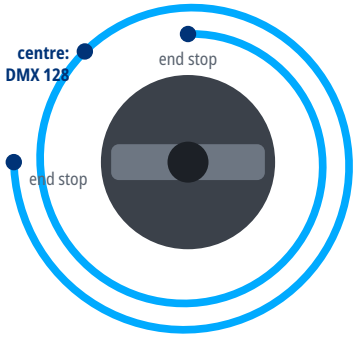
Description in the GDTF file

“he ACL 360 MATRIX™ is a versatile moving head effect luminaire featuring (25) individual 15W RGBW 4-in-1 LEDs and the new advanced collimator optic lens, which combined produce a laser-like homogenized 4° color-changing beam from each lens.”

Range of movement

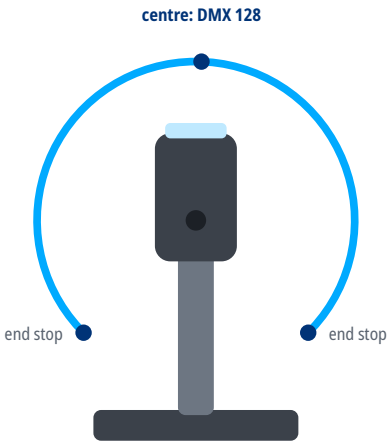
Pan 630°

top view



Tilt 270°

side view



5 Installation

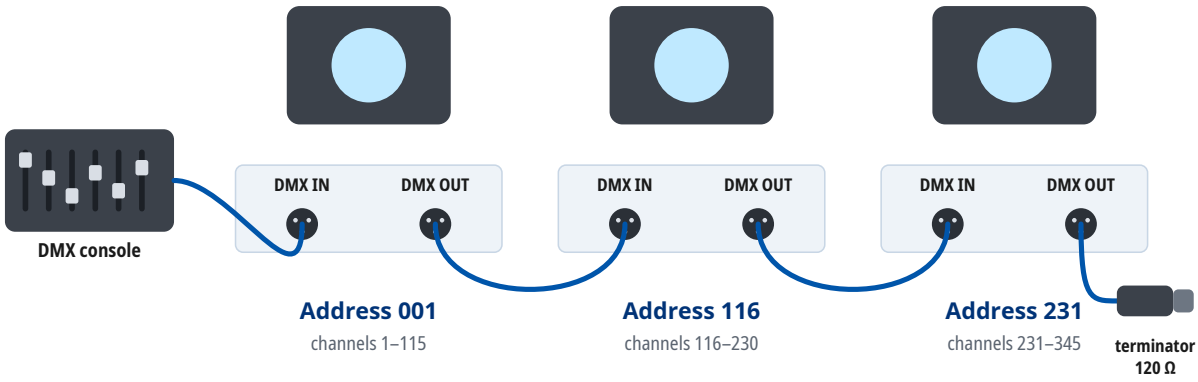
⚠ WARNING

- 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: 5.2 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 Extended: every unit occupies 115 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

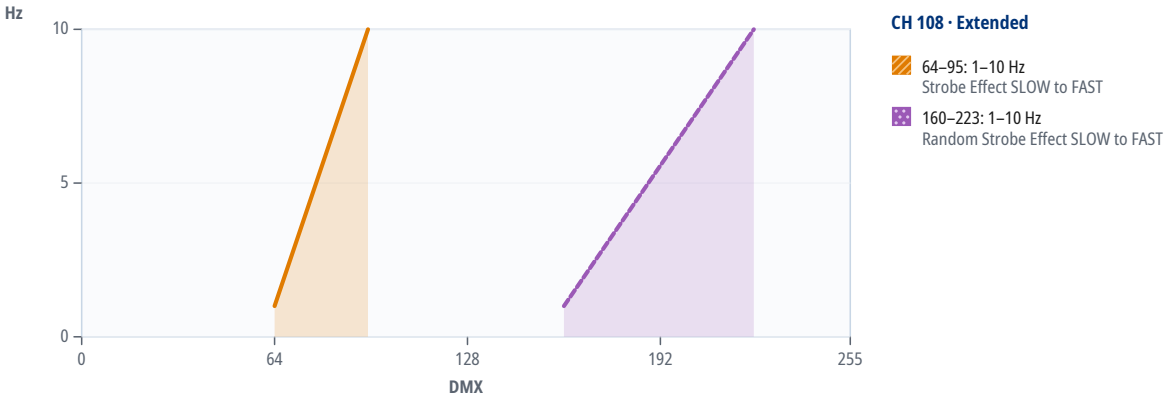
- The device occupies as many consecutive channels in the DMX universe as the selected DMX mode uses, starting at the set start address.
- Number of channels occupied in the DMX mode “Extended”: 115.
- Choose start addresses so that the channels of individual devices do not overlap and the last occupied 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, 116, 231, 346.
- The DMX mode set on the device must match the fixture profile (personality) used in the controller.

8 Functions at a glance

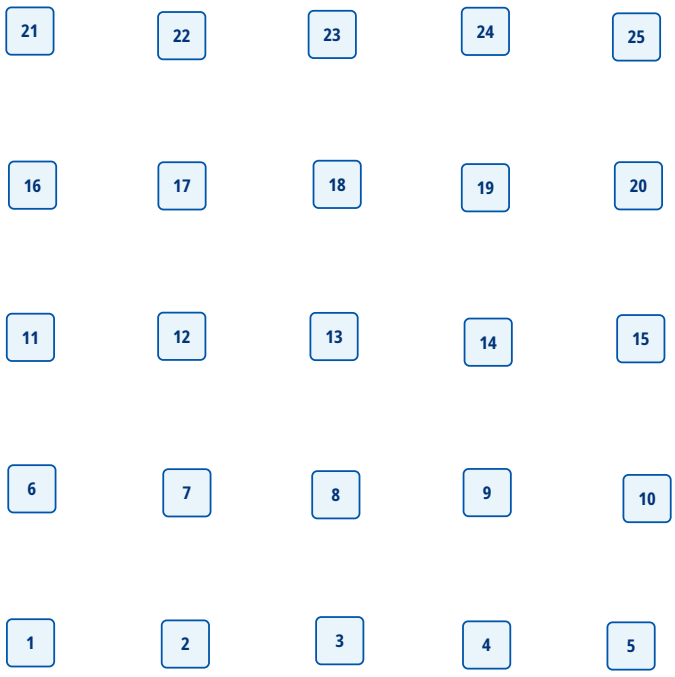
Functions in each DMX mode

	Extended 115 channels	Stand 19 channels	Basic 17 channels
Pan / Tilt	**1, 3, 5, 6**	**1, 3, 5, 6**	**1–4**
Pan / Tilt resolution	16 bit	16 bit	8 bit
Dimmer	**109**	**13**	**11**
Shutter / strobe	**108**	**12**	**10**
Color mixing	**7–106**	**7–10**	**5–8**
Effects / macros	**107, 111, 112**	**11, 15, 16**	**9, 13, 14**

Strobe rate



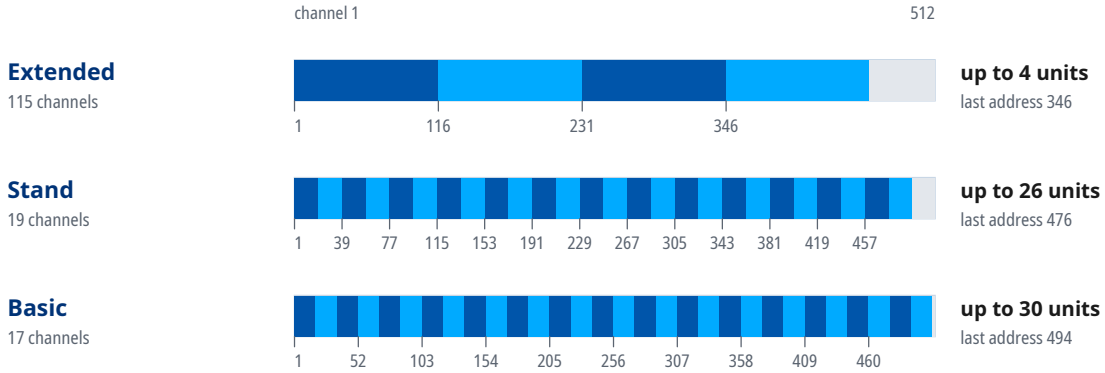
Cells (pixels)



Cells where the GDTF file places them (seen from above), 25 in all; numbered in the order of their first DMX channel 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	U2 · 116	11	U3 · 231	16	U4 · 346
2	116	7	U2 · 231	12	U3 · 346	17	U5 · 1
3	231	8	U2 · 346	13	U4 · 1	18	U5 · 116
4	346	9	U3 · 1	14	U4 · 116	19	U5 · 231
5	U2 · 1	10	U3 · 116	15	U4 · 231	20	U5 · 346

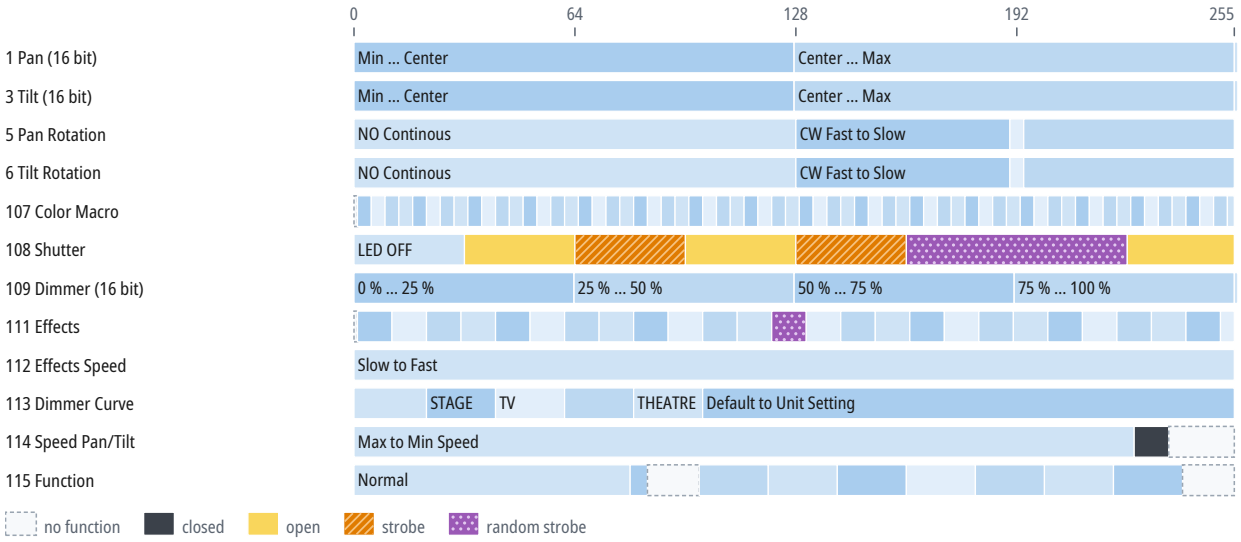
Where a DMX universe is full, the next units continue in the next universe: “U2 · 1” is address 1 in the second universe, counted from the universe of the first unit.

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 108 Shutter at 32–63, 96–127 or 224–255. The GDTF file gives these values for a console's Highlight function: CH 7 Red 255 (the same in each of the 25 cells), CH 8 Green 255 (the same in each of the 25 cells), CH 9 Blue 255 (the same in each of the 25 cells), CH 10 White 255 (the same in each of the 25 cells), CH 108 Shutter 47, CH 109 Dimmer 255.

Channel functions at a glance



CH	Function	DMX	Description
1	Pan	0–127	Min ... Center
		127	Center
		128–255	Center ... Max
		255	Max
2	Pan Fine	0–255	Fine adjustment of CH 1
3	Tilt	0–127	Min ... Center
		127	Center
		128–255	Center ... Max
		255	Max
4	Tilt Fine	0–255	Fine adjustment of CH 3
5	Pan Rotation	0–127	NO Continous
		128–189	CW Fast to Slow (360–10 °/s)
		190–193	NO Rotation
		194–255	PAN CONTINUOUS MOVEMENT: Slow to Fast (10–360 °/s)
6	Tilt Rotation	0–127	NO Continous
		128–189	CW Fast to Slow (360–10 °/s)
		190–193	NO Rotation
		194–255	Tilt CONTINUOUS MOVEMENT: Slow to Fast (10–360 °/s)
7	Red 1	0	0 %
		1–62	0 % ... 25 %

CH	Function	DMX	Description
7	Red 1 (continued)	63	25 %
		64–126	25 % … 50 %
		127	50 %
		128–190	50 % … 75 %
		191	75 %
		192–254	75 % … 100 %
		255	100 %
8	Green 1	0	0 %
		1–62	0 % … 25 %
		63	25 %
		64–126	25 % … 50 %
		127	50 %
		128–190	50 % … 75 %
		191	75 %
		192–254	75 % … 100 %
		255	100 %
9	Blue 1	0	0 %
		1–62	0 % … 25 %
		63	25 %
		64–126	25 % … 50 %
		127	50 %
		128–190	50 % … 75 %
		191	75 %
		192–254	75 % … 100 %
		255	100 %
10	White 1	0	0 %
		1–62	0 % … 25 %
		63	25 %
		64–126	25 % … 50 %
		127	50 %
		128–190	50 % … 75 %
		191	75 %
		192–254	75 % … 100 %
		255	100 %
107	Color Macro		Color Preset
		0	OFF
		1–4	Color Macro 1
		5–8	Color Macro 2
		9–12	Color Macro 3
		13–16	Color Macro 4
		17–20	Color Macro 5
		21–24	Color Macro 6

CH	Function	DMX	Description
107	Color Macro (continued)	25–28	Color Macro 7
		29–32	Color Macro 8
		33–36	Color Macro 9
		37–40	Color Macro 10
		41–44	Color Macro 11
		45–48	Color Macro 12
		49–52	Color Macro 13
		53–56	Color Macro 14
		57–60	Color Macro 15
		61–64	Color Macro 16
		65–68	Color Macro 17
		69–72	Color Macro 18
		73–76	Color Macro 19
		77–80	Color Macro 20
		81–84	Color Macro 21
		85–88	Color Macro 22
		89–92	Color Macro 23
		93–96	Color Macro 24
		97–100	Color Macro 25
		101–104	Color Macro 26
		105–108	Color Macro 27
		109–112	Color Macro 28
		113–116	Color Macro 29
		117–120	Color Macro 30
		121–124	Color Macro 31
		125–128	Color Macro 32
		129–132	Color Macro 33
		133–136	Color Macro 34
		137–140	Color Macro 35
		141–144	Color Macro 36
		145–148	Color Macro 37
		149–152	Color Macro 38
		153–156	Color Macro 39
		157–160	Color Macro 40
		161–164	Color Macro 41
		165–168	Color Macro 42
		169–172	Color Macro 43
		173–176	Color Macro 44
		177–180	Color Macro 45
		181–184	Color Macro 46
		185–188	Color Macro 47
		189–192	Color Macro 48

CH	Function	DMX	Description
107	Color Macro (continued)	193–196	Color Macro 49
		197–200	Color Macro 50
		201–204	Color Macro 51
		205–208	Color Macro 52
		209–212	Color Macro 53
		213–216	Color Macro 54
		217–220	Color Macro 55
		221–224	Color Macro 56
		225–228	Color Macro 57
		229–232	Color Macro 58
		233–236	Color Macro 59
		237–240	Color Macro 60
		241–244	Color Macro 61
		245–248	Color Macro 62
		249–252	Color Macro 63
		253–255	Color Macro 64
108	Shutter	0–31	LED OFF
		32–63	Shutter: LED ON
		64–95	Strobe Effect SLOW to FAST (1–10 Hz)
		96–127	Shutter: LED ON
		128–159	Pulse Effect in Sequences (1–10 Hz)
		160–223	Random Strobe Effect SLOW to FAST (1–10 Hz)
		224–255	Shutter: LED ON
109	Dimmer	0–63	0 % … 25 %
		63	25 %
		64–127	25 % … 50 %
		127	50 %
		128–191	50 % … 75 %
		191	75 %
		192–255	75 % … 100 %
		255	100 %
110	Dimmer Fine	0–255	Fine adjustment of CH 109
111	Effects		Color Macro
		0	No Function
		1–10	Single Array Sequence 1
		11–20	Single Array Sequence #2
		21–30	Single LED to Full Grid ON Array from Each Corner Sequence
		31–40	Staggered Array Sequence
		41–50	Single LED to Full Grid Array ON to Full Grid Array ON to Single LED OFF Sequence
		51–60	5 LED Array to Full Grid ON to Opposite Orientation 5 LED Array to Full Grid ON Sequence
		61–70	Burst Array from Center LED Sequence

CH	Function	DMX	Description
111	Effects (continued)	71–80	9 LED Array Rotation Sequence
		81–90	Single LED Chase Sequence #1
		91–100	Single LED Chase Sequence #2
		101–110	Swirl Pattern Array Sequence
		111–120	5 LED Array Breakup Sequence
		121–130	Random LED Sequence
		131–140	Single LED Snake Chase Sequence
		141–150	Wave Pattern Array Sequence
		151–160	5 LED Array to Opposite Orientation 5 LED Array Transition Sequence
		161–170	Clockwise Rotation Array Pattern Sequence
		171–180	Criss Cross Array Sequence
		181–190	Dual LED Snake Chase Sequence
		191–200	Downward Arrow Array Sequence
		201–210	4 LED Chase Sequence
		211–220	15 LED Array Transition to Opposite Orientation 15 LED Array Sequence
		221–230	Numbers 0-9
		231–240	Upper Case Alphabet Sequence
		241–250	Lower Case Alphabet Sequence
		251–255	All LEDs ON Gradient Effect
112	Effects Speed		Play Speed 1
		0–255	Slow to Fast (0–5 Hz)
113	Dimmer Curve	0–20	STANDARD
		21–40	STAGE
		41–60	TV
		61–80	ARCHITECTURAL
		81–100	THEATRE
		101–255	Default to Unit Setting
114	Speed Pan/Tilt		Movement speed
		0–225	Max to Min Speed
		226–235	Blackout Movement
		236–255	No Function

CH	Function	DMX	Description
115	Function	0–79	Normal
		80–84	ALL Motor Reset
		85–99	NO FUNCTION
		100–119	Internal Program 1
		120–139	Internal Program 2
		140–159	Internal Program 3
		160–179	Internal Program 4
		180–199	Internal Program 5
		200–219	Internal Program 6
		220–239	Internal Program 7
		240–255	No Function

CH 7–106: 25 cells of 4 channels each. Every cell works as cell 1 in the table above (CH 7–10); the table below gives each cell's channel numbers.

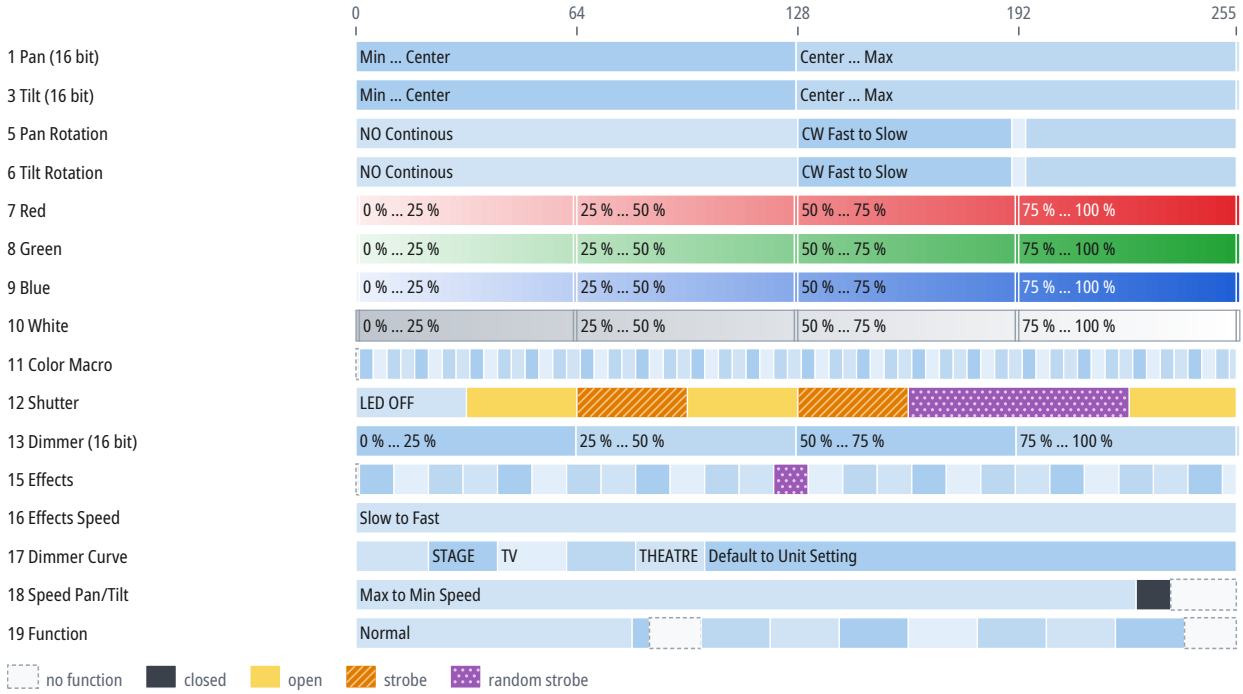
Cell	Red	Green	Blue	White	Cell	Red	Green	Blue	White
1	7	8	9	10	2	11	12	13	14
3	15	16	17	18	4	19	20	21	22
5	23	24	25	26	6	27	28	29	30
7	31	32	33	34	8	35	36	37	38
9	39	40	41	42	10	43	44	45	46
11	47	48	49	50	12	51	52	53	54
13	55	56	57	58	14	59	60	61	62
15	63	64	65	66	16	67	68	69	70
17	71	72	73	74	18	75	76	77	78
19	79	80	81	82	20	83	84	85	86
21	87	88	89	90	22	91	92	93	94
23	95	96	97	98	24	99	100	101	102
25	103	104	105	106					

Mode Stand

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 Shutter at 32–63, 96–127 or 224–255. The GDTF file gives these values for a console's Highlight function: CH 7 Red 255, CH 8 Green 255, CH 9 Blue 255, CH 10 White 255, CH 12 Shutter 47, CH 13 Dimmer 255.

Channel functions at a glance



CH	Function	DMX	Description
1	Pan		Same as CH 1 in the mode “Extended” (p. 9)
2	Pan Fine	0–255	Fine adjustment of CH 1
3	Tilt		Same as CH 3 in the mode “Extended” (p. 9)
4	Tilt Fine	0–255	Fine adjustment of CH 3
5	Pan Rotation		Same as CH 5 in the mode “Extended” (p. 9)
6	Tilt Rotation		Same as CH 6 in the mode “Extended” (p. 9)
7	Red	0	0 %
		1–62	0 % ... 25 %
		63	25 %
		64–126	25 % ... 50 %
		127	50 %
		128–190	50 % ... 75 %
		191	75 %
		192–254	75 % ... 100 %
		255	100 %
8	Green	0	0 %
		1–62	0 % ... 25 %
		63	25 %

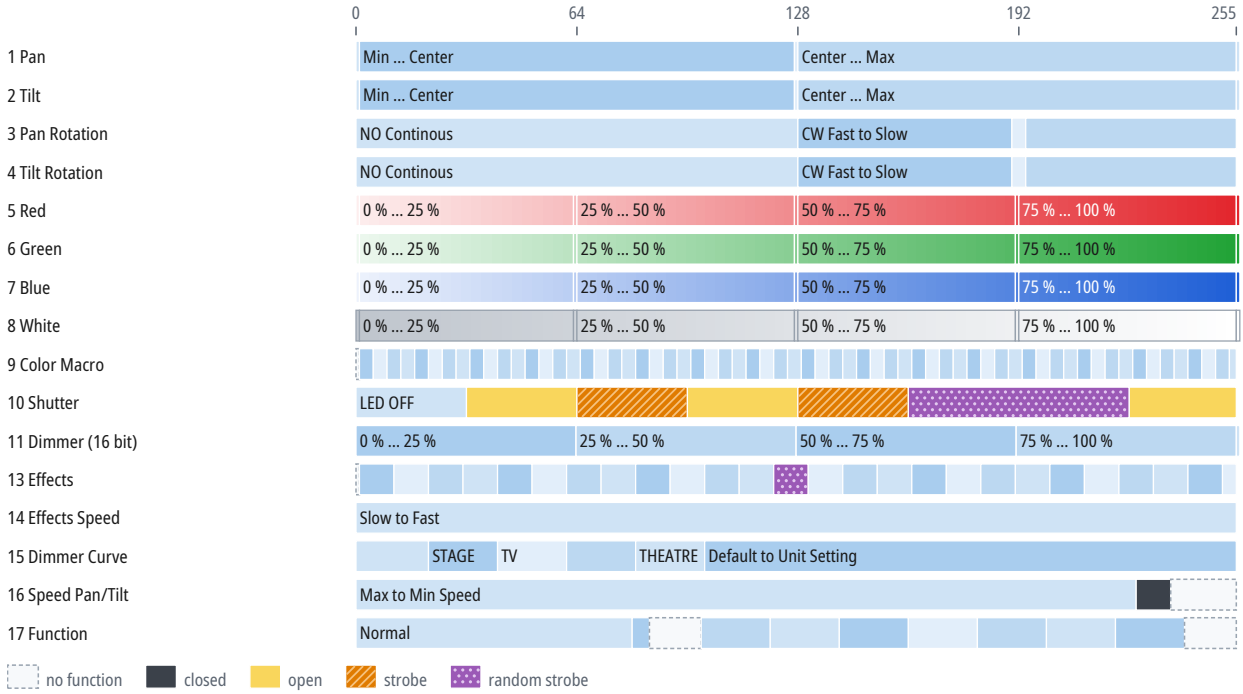
CH	Function	DMX	Description
8	Green (continued)	64–126	25 % … 50 %
		127	50 %
		128–190	50 % … 75 %
		191	75 %
		192–254	75 % … 100 %
		255	100 %
9	Blue	0	0 %
		1–62	0 % … 25 %
		63	25 %
		64–126	25 % … 50 %
		127	50 %
		128–190	50 % … 75 %
		191	75 %
		192–254	75 % … 100 %
		255	100 %
10	White	0	0 %
		1–62	0 % … 25 %
		63	25 %
		64–126	25 % … 50 %
		127	50 %
		128–190	50 % … 75 %
		191	75 %
		192–254	75 % … 100 %
		255	100 %
11	Color Macro		Same as CH 107 in the mode “Extended” (p. 10)
12	Shutter		Same as CH 108 in the mode “Extended” (p. 12)
13	Dimmer		Same as CH 109 in the mode “Extended” (p. 12)
14	Dimmer Fine	0–255	Fine adjustment of CH 13
15	Effects		Same as CH 111 in the mode “Extended” (p. 12)
16	Effects Speed		Same as CH 112 in the mode “Extended” (p. 13)
17	Dimmer Curve		Same as CH 113 in the mode “Extended” (p. 13)
18	Speed Pan/Tilt		Same as CH 114 in the mode “Extended” (p. 13)
19	Function		Same as CH 115 in the mode “Extended” (p. 14)

Mode Basic

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 10 Shutter at 32–63, 96–127 or 224–255. The GDTF file gives these values for a console's Highlight function: CH 5 Red 255, CH 6 Green 255, CH 7 Blue 255, CH 8 White 255, CH 10 Shutter 47, CH 11 Dimmer 255.

Channel functions at a glance



CH	Function	DMX	Description
1	Pan	0	Min
		1–126	Min ... Center
		127	Center
		128–254	Center ... Max
		255	Max
2	Tilt	0	Min
		1–126	Min ... Center
		127	Center
		128–254	Center ... Max
		255	Max
3	Pan Rotation		Same as CH 5 in the mode “Extended” (p. 9)
4	Tilt Rotation		Same as CH 6 in the mode “Extended” (p. 9)
5	Red		Same as CH 7 in the mode “Stand” (p. 15)
6	Green		Same as CH 8 in the mode “Stand” (p. 15)
7	Blue		Same as CH 9 in the mode “Stand” (p. 16)
8	White		Same as CH 10 in the mode “Stand” (p. 16)
9	Color Macro		Same as CH 107 in the mode “Extended” (p. 10)
10	Shutter		Same as CH 108 in the mode “Extended” (p. 12)

CH	Function	DMX	Description
11	Dimmer		Same as CH 109 in the mode “Extended” (p. 12)
12	Dimmer Fine	0–255	Fine adjustment of CH 11
13	Effects		Same as CH 111 in the mode “Extended” (p. 12)
14	Effects Speed		Same as CH 112 in the mode “Extended” (p. 13)
15	Dimmer Curve		Same as CH 113 in the mode “Extended” (p. 13)
16	Speed Pan/Tilt		Same as CH 114 in the mode “Extended” (p. 13)
17	Function		Same as CH 115 in the mode “Extended” (p. 14)

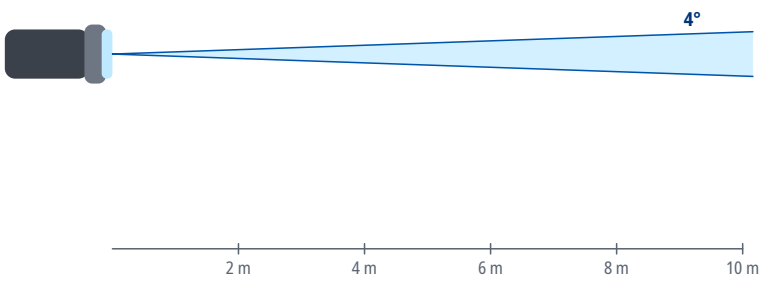
10 Technical specifications

Parameter	Value
Light source	LED
Pan	630°
Tilt	270°
Weight	5.2 kg
Operating temperature	0 to 40 °C

Speeds and ranges

Parameter	Value
Strobe frequency	1–10 Hz

Spot diameter



Distance	Ø 4°
2 m	0.14 m
4 m	0.28 m
6 m	0.42 m
8 m	0.56 m
10 m	0.7 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.