DMX REFERENCE

Phantom Zoom Bar 1220

Showtec



Manufacturer	Showtec
GDTF file	Showtec_Phantom_Zoom_Bar_1220_30634.gdtf
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1 About this manual

This document describes the Phantom Zoom Bar 1220 by Showtec. It was compiled from the GDTF file Showtec_Phantom_Zoom_Bar_1220_30634.gdtf from the GDTF-Share library.

File revision: “0.72”.

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 Showtec; 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
84 canaux	84	6	1, 85, 169, 253, ...
19 canaux	19	26	1, 20, 39, 58, ...

No light? Check these channels

- 84 canaux: CH 4 Dimmer 1 above 0; CH 6 Strobe at 5–6 “Shutter open”; CH 14 Dimmer 2 above 0; CH 25 Dimmer above 0 (the same in each of the 12 cells)
- 19 canaux: CH 4 Dimmer 1 above 0; CH 5 Strobe at 5–6, 25–26, 65–66, 85–86, 105–106, 125–126, 145–146, 165–166, 185–186, 205–206, 225–226 or 245–255 “open”; CH 13 Dimmer 2 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

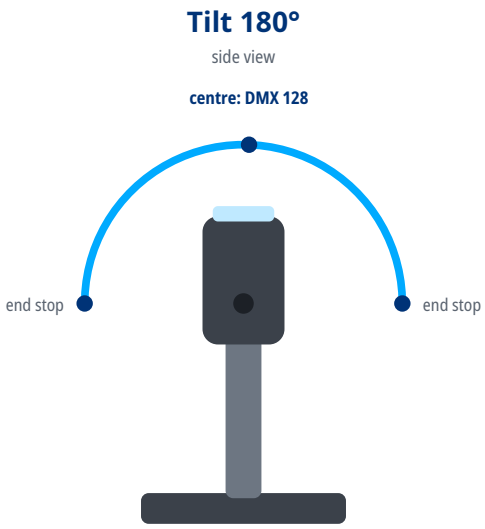
- Strobe and fast flashing light effects can trigger epileptic seizures in susceptible people (photosensitive epilepsy) and can cause nausea or disorientation.
- Inform the audience and performers in advance that strobe effects will be used, for example with a notice at the entrance, and do not use them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

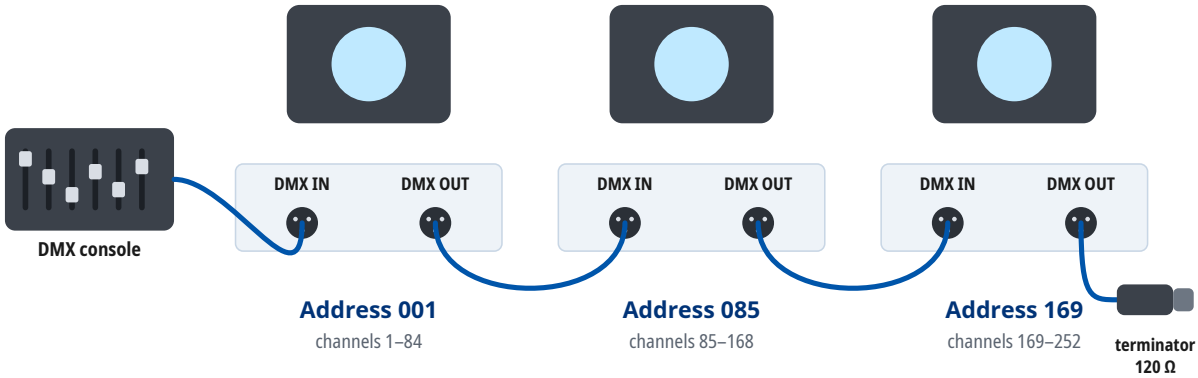
6 Connections

- 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 84 canaux: every unit occupies 84 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

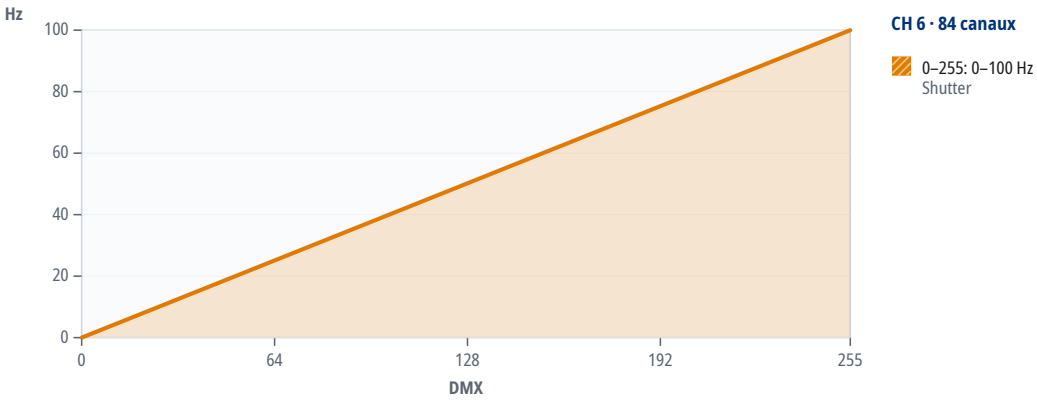
- The device occupies as many consecutive channels in the DMX universe as the selected DMX mode uses, starting at the set start address.
- Number of channels occupied in the DMX mode “84 canaux”: 84.
- Choose start addresses so that the channels of individual devices do not overlap and the last occupied 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 “84 canaux”, you can use, for example, the start addresses 1, 85, 169, 253.
- 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

		84 canaux 84 channels	19 canaux 19 channels
	Pan / Tilt	**1, 3**	**1, 3**
	Dimmer	**14 channels (4–80)**	**4, 13**
	Dimmer resolution	16 bit	8 bit
	Shutter / strobe	**6**	**5**
	Color mixing	**56 channels (15–84)**	**16–19**
	Color temperature	**7**	**6**
	Zoom	**19**	**14**
	Effects / macros	**8, 10–13**	
	Pixel control	**12 cells**	

Strobe rate



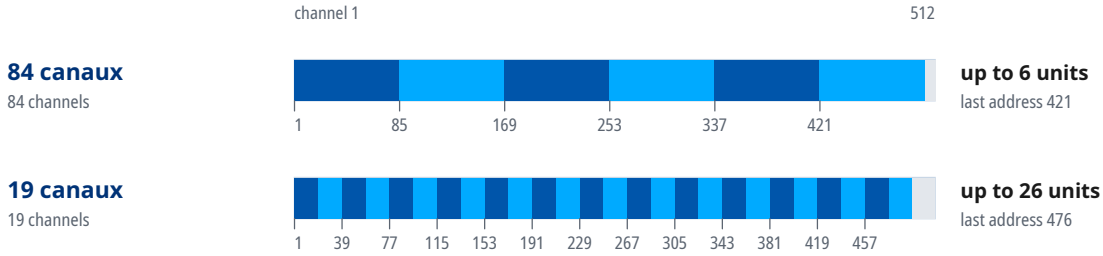
Cells (pixels)



12 cells where the GDTF file places them (seen from above), numbered by their first DMX channel (CH) in the mode “84 canaux”.

9 DMX channels

Units in one DMX universe



Start addresses of 20 units in the mode “84 canaux”

Unit	Start address	Unit	Start address	Unit	Start address	Unit	Start address
1	1	6	421	11	U2 · 337	16	U3 · 253
2	85	7	U2 · 1	12	U2 · 421	17	U3 · 337
3	169	8	U2 · 85	13	U3 · 1	18	U3 · 421
4	253	9	U2 · 169	14	U3 · 85	19	U4 · 1
5	337	10	U2 · 253	15	U3 · 169	20	U4 · 85

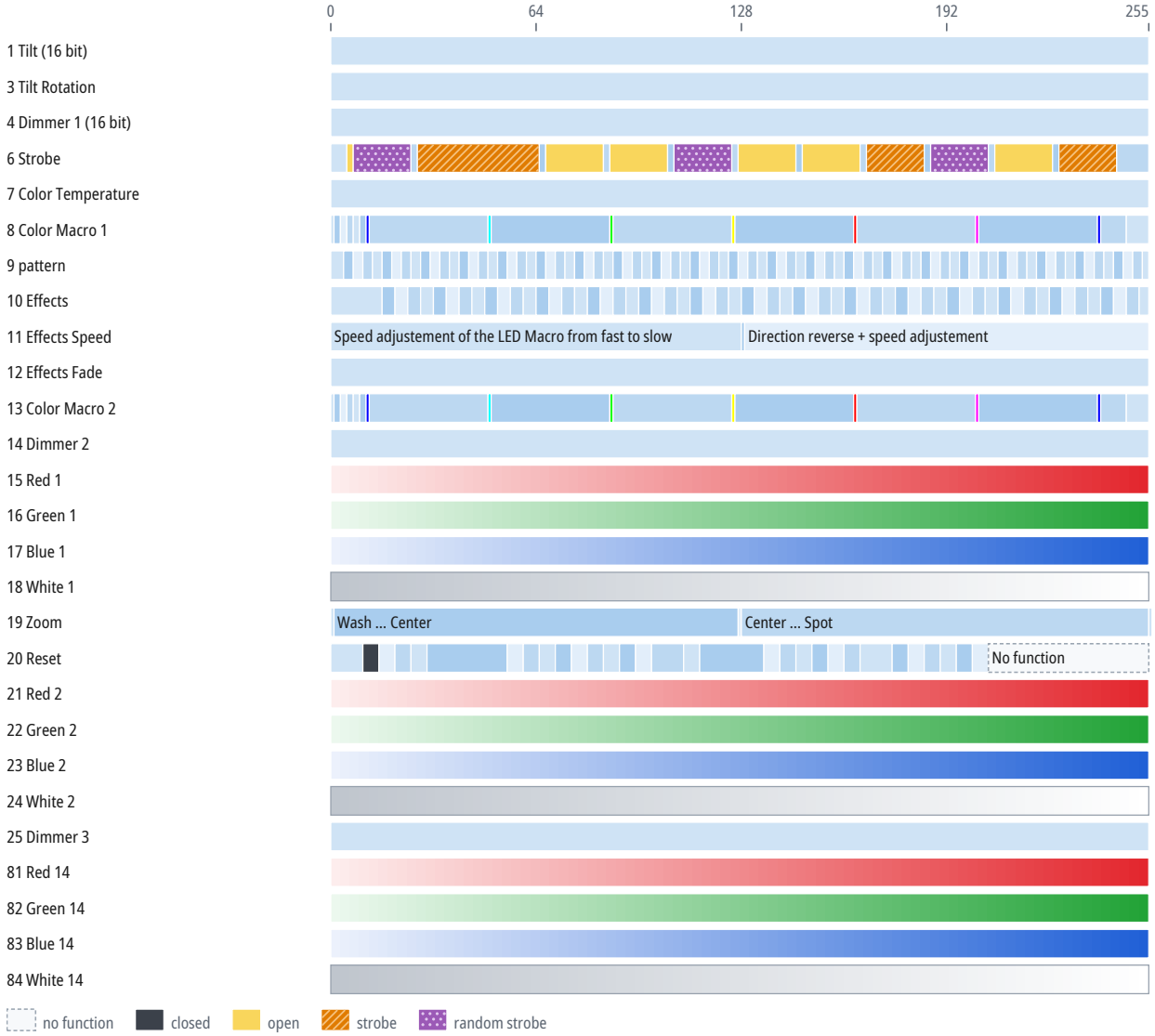
Where a DMX universe is full, the next units continue in the next universe: “U2 · 1” is address 1 in the second universe, counted from the universe of the first unit.

Mode 84 canaux

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 4 Dimmer 1 above 0; CH 6 Strobe at 5–6 “Shutter open”; CH 14 Dimmer 2 above 0; CH 25 Dimmer above 0 (the same in each of the 12 cells). The GDTF file gives these values for a console's Highlight function: CH 4 Dimmer 1 255, CH 6 Strobe 255, CH 21 Red 255 (the same in each of the 12 cells), CH 22 Green 255 (the same in each of the 12 cells), CH 23 Blue 255 (the same in each of the 12 cells).

Channel functions at a glance



CH	Function	DMX	Description
1	Tilt	0–255	180°
2	Tilt Fine	0–255	Fine adjustment of CH 1
3	Tilt Rotation	0–255	
4	Dimmer 1	0–255	
5	Dimmer 1 Fine	0–255	Fine adjustment of CH 4
6	Strobe	0–4	Shutter

CH	Function	DMX	Description
6	Strobe (continued)	5–6	Shutter open
		7–24	Pixel Random
		25–26	Pixel Random ... Strobe from high to low
		27–64	Strobe from high to low
		65–66	Strobe from high to low ... Fast on / slow off
		67–84	Fast on / slow off
		85–86	Fast on / slow off ... Slow on / fast off
		87–104	Slow on / fast off
		105–106	Slow on / fast off ... Random strobe
		107–124	Random strobe
		125–126	Random strobe ... Random fast on / slow off
		127–144	Random fast on / slow off
		145–146	Random fast on / slow off ... Random slow on / fast off
		147–164	Random slow on / fast off
		165–166	Random slow on / fast off ... Pulse strobe
		167–184	Pulse strobe
		185–186	Pulse strobe ... Random pulse strobe
		187–204	Random pulse strobe
		205–206	Random pulse strobe ... Fade on / off
		207–224	Fade on / off
		225–226	Fade on / off ... Pulse strobe
		227–244	Pulse strobe
		245–255	Shutter
7	Color Temperature	0–255	
8	Color Macro 1	0	Colors
		1–2	White 2700k
		3–4	White 3200K
		5–6	White 4200K
		7–8	White 5600K
		9–10	White 8000K
		11	Blue
		12–48	R=0 G+ B=255 W=0
		49	Cyan
		50–86	R=0 G=255 B- W=0
		87	Green
		88–124	R+ G=255 B=0 W=0
		125	Yellow
		126–162	R=255 G- B=0 W=0
		163	Red
		164–200	R=255 G=0 B+ W=0
		201	Magenta
		202–238	R- G=0 B=255 W=0

CH	Function	DMX	Description
8	Color Macro 1 (continued)	239	Blue
		240–247	Color flow from fast to slow
		248–255	Color switch from fast to slow
9	pattern	0–3	Pattern
		4–6	Pattern 1
		7–9	Pattern 2
		10–12	Pattern 3
		13–15	Pattern 4
		16–18	Pattern 5
		19–21	Pattern 6
		22–24	Pattern 7
		25–27	Pattern 8
		28–30	Pattern 9
		31–33	Pattern 10
		34–36	Pattern 11
		37–39	Pattern 12
		40–42	Pattern 13
		43–45	Pattern 14
		46–48	Pattern15
		49–51	Pattern 16
		52–54	Pattern 17
		55–57	Pattern 18
		58–60	Pattern 19
		61–63	Pattern 20
		64–66	Pattern 21
		67–69	Pattern 22
		70–72	Pattern 23
		73–75	Pattern 24
		76–78	Pattern 25
		79–81	Pattern 26
		82–84	Pattern 27
		85–87	Pattern 28
		88–90	Pattern 29
		91–93	Pattern 30
		94–96	Pattern 31
		97–99	Pattern 32
		100–102	Pattern 33
		103–105	Pattern 34
		106–108	Pattern 35
		109–111	Pattern 36
		112–114	Pattern 37
		115–117	Pattern 38

CH	Function	DMX	Description
9	pattern (continued)	118–120	Pattern 39
		121–123	Pattern 40
		124–126	Pattern 41
		127–129	Pattern 42
		130–132	Pattern 43
		133–135	Pattern 44
		136–138	Pattern 45
		139–141	Pattern 46
		142–144	Pattern 47
		145–147	Pattern 48
		148–150	Pattern 49
		151–153	Pattern 50
		154–156	Pattern 51
		157–159	Pattern 52
		160–162	Pattern 53
		163–165	Pattern 54
		166–168	Pattern 55
		169–171	Pattern 56
		172–174	Pattern 57
		175–177	Pattern 58
		178–180	Pattern 59
		181–183	Pattern 60
		184–186	Pattern 61
		187–189	Pattern 62
		190–192	Pattern 63
		193–195	Pattern 64
		196–198	Pattern 65
		199–201	Pattern 66
		202–204	Pattern 67
		205–207	Pattern 68
		208–210	Pattern 69
		211–213	Pattern 70
		214–216	Pattern 71
		217–219	Pattern 72
		220–222	Pattern 73
		223–225	Pattern 74
		226–228	Pattern 75
		229–231	Pattern 76
		232–234	Pattern 77
		235–237	Pattern 78
		238–240	Pattern 79
		241–243	Pattern 80

CH	Function	DMX	Description
9	pattern (continued)	244–246	Pattern 81
		247–249	Pattern 82
		250–252	Pattern 83
		253–255	Pattern 84
10	Effects		LED Macros
		0–15	LED Macros
		16–19	LED Macro 1
		20–23	LED Macro 2
		24–27	LED Macro 3
		28–31	LED Macro 4
		32–35	LED Macro 5
		36–39	LED Macro 6
		40–43	LED Macro 7
		44–47	LED Macro 8
		48–51	LED Macro 9
		52–55	LED Macro 10
		56–59	LED Macro 11
		60–63	LED Macro 12
		64–67	LED Macro 13
		68–71	LED Macro 14
		72–75	LED Macro 15
		76–79	LED Macro 16
		80–83	LED Macro 17
		84–87	LED Macro 18
		88–91	LED Macro 19
		92–95	LED Macro 20
		96–99	LED Macro 21
		100–103	LED Macro 22
		104–107	LED Macro 23
		108–111	LED Macro 24
		112–115	LED Macro 25
		116–119	LED Macro 26
		120–123	LED Macro 27
		124–127	LED Macro 28
		128–131	LED Macro 29
		132–135	LED Macro 30
		136–139	LED Macro 31
		140–143	LED Macro 32
		144–147	LED Macro 33
		148–151	LED Macro 34
		152–155	LED Macro 35
		156–159	LED Macro 36

CH	Function	DMX	Description
10	Effects (continued)	160–163	LED Macro 37
		164–167	LED Macro 38
		168–171	LED Macro 39
		172–175	LED Macro 40
		176–179	LED Macro 41
		180–183	LED Macro 42
		184–187	LED Macro 43
		188–191	LED Macro 44
		192–195	LED Macro 45
		196–199	LED Macro 46
		200–203	LED Macro 47
		204–207	LED Macro 48
		208–211	LED Macro 49
		212–215	LED Macro 50
		216–219	LED Macro 51
		220–223	LED Macro 52
		224–227	LED Macro 53
		228–231	LED Macro 54
		232–235	LED Macro 55
		236–239	LED Macro 56
		240–243	LED Macro 57
		244–247	LED Macro 58
		248–251	LED Macro 59
		252–255	LED Macro 60
11	Effects Speed		LED Macros Speed
		0–127	Speed adjustement of the LED Macro from fast to slow
		128	Stop
		129–255	Direction reverse + speed adjustement
12	Effects Fade	0–255	
13	Color Macro 2		Color Effects 1 1
		0	Color Effects 1 1
		1–2	White 2700K
		3–4	White 3200K
		5–6	White 4200K
		7–8	White 5600K
		9–10	White 8000K
		11	Blue
		12–48	R=0 G+ B=255 W=0
		49	Cyan
		50–86	R=0 G=255 B- W=0
		87	Green
		88–124	R+ G=255 B=0 W=0

CH	Function	DMX	Description
13	Color Macro 2 (continued)	125	Yellow
		126–162	R=255 G- B=0 W=0
		163	Red
		164–200	R=255 G=0 B+ W=0
		201	Magenta
		202–238	R- G=0 B=255 W=0
		239	Blue
		240–247	Color flow fast to slow
		248–255	Color switch fast to slow
14	Dimmer 2	0–255	
15	Red 1	0–255	
16	Green 1	0–255	
17	Blue 1	0–255	
18	White 1	0–255	
19	Zoom	0	Wash
		1–126	Wash ... Center
		127	Center
		128–254	Center ... Spot
		255	Spot
20	Reset	0–9	Control
		10–14	Tilt blackout
		15–19	Tilt blackout ... RGBW color mixing
		20–24	RGBW color mixing
		25–29	CMY color mixing
		30–54	CMY color mixing ... Tilt reset
		55–59	Tilt reset
		60–64	Zoom reset
		65–69	Zoom reset ... All reset
		70–74	All reset
		75–79	All reset ... Tilt reverse
		80–84	Tilt reverse
		85–89	Pixel reverse
		90–94	Tilt reverse
		95–99	Tilt reverse ... Cancel tilt reverse
		100–109	Cancel tilt reverse
		110–114	Cancel pixel reverse
		115–134	Cancel pixel reverse ... Dimmer fast
		135–139	Dimmer fast
		140–144	Dimmer smooth
		145–149	Linear curve
		150–154	Square curve
		155–159	I square curve

CH	Function	DMX	Description
20	Reset (continued)	160–164	S-curve
		165–174	S-curve ... PWM-600 Hz
		175–179	PWM-600 Hz
		180–184	PWM-1200 Hz
		185–189	PWM-2000 Hz
		190–194	PWM-4000 Hz
		195–199	PWM-6000 Hz
		200–204	PWM-15000 Hz
		205–255	No function
21	Red 2	0–255	
22	Green 2	0–255	
23	Blue 2	0–255	
24	White 2	0–255	
25	Dimmer 3	0–255	
81	Red 14	0–255	
82	Green 14	0–255	
83	Blue 14	0–255	
84	White 14	0–255	

CH 21–80: 12 cells of 5 channels each. Every cell works as cell 1 in the table above (CH 21–25); the table below gives each cell's channel numbers.

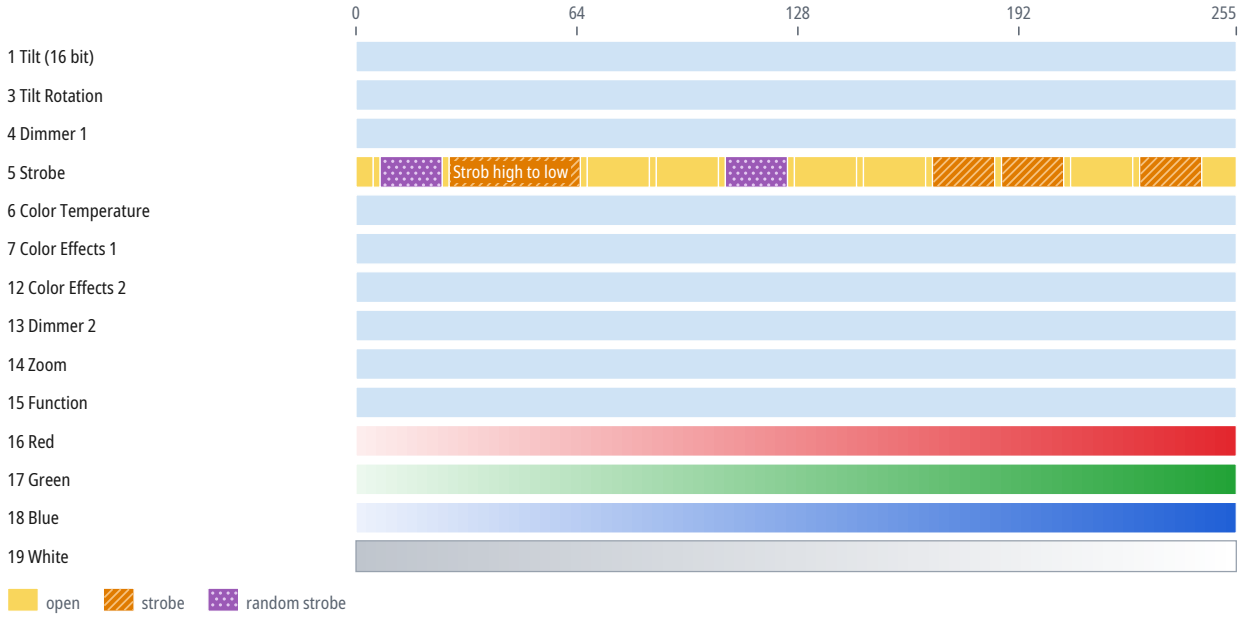
Cell	Red	Green	Blue	White	Dimmer	Cell	Red	Green	Blue	White	Dimmer
1	21	22	23	24	25	2	26	27	28	29	30
3	31	32	33	34	35	4	36	37	38	39	40
5	41	42	43	44	45	6	46	47	48	49	50
7	51	52	53	54	55	8	56	57	58	59	60
9	61	62	63	64	65	10	66	67	68	69	70
11	71	72	73	74	75	12	76	77	78	79	80

Mode 19 canaux

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 4 Dimmer 1 above 0; CH 5 Strobe at 5–6, 25–26, 65–66, 85–86, 105–106, 125–126, 145–146, 165–166, 185–186, 205–206, 225–226 or 245–255 “open”; CH 13 Dimmer 2 above 0.

Channel functions at a glance



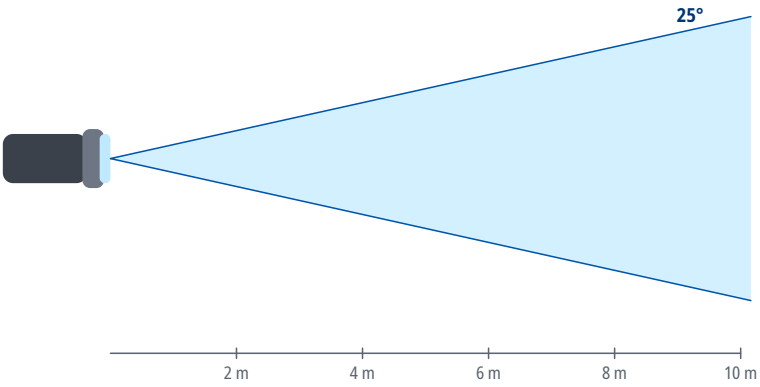
CH	Function	DMX	Description
1	Tilt	0–255	
2	Tilt Fine	0–255	Fine adjustment of CH 1
3	Tilt Rotation	0–255	
4	Dimmer 1	0–255	
5	Strobe	0–4	No function
		5–6	Open
		7–24	Random high to low frequency
		25–26	Open
		27–64	Strob high to low
		65–66	Open
		67–84	Rapide ON / lent OFF high to low
		85–86	Open
		87–104	Lent ON / rapide OFF high to low
		105–106	Open
		107–124	Random Strob high to low
		125–126	Open
		127–144	Random rapide ON / lent OFF High to low
		145–146	Open
		147–164	Random lent ON / rapide OFF High to low
		165–166	Open

CH	Function	DMX	Description
5	Strobe (continued)	167–184	Strob with pulse Hight to low
		185–186	Open
		187–204	Strob with random pulse High to low
		205–206	Open
		207–224	Fondu on/off high to low
		225–226	Open
		227–244	Strob with pulse high to low
		245–255	Open
6	Color Temperature	0–255	
7	Color Effects 1	0–255	
12	Color Effects 2	0–255	
13	Dimmer 2	0–255	
14	Zoom	0–255	
15	Function	0–255	
16	Red	0–255	
17	Green	0–255	
18	Blue	0–255	
19	White	0–255	

10 Technical specifications

Parameter	Value
Light source	discharge lamp
Tilt	180°
Operating temperature	0 to 40 °C

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.

Problem	Remedy
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.