DMX REFERENCE

WD 120 FX

Expolite



Manufacturer	Expolite
GDTF file	Expolite_WD_120_FX_167985.gdtf
GDTF revision	WD 120 FX · 2026-11-05
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1 About this manual

This document describes the WD 120 FX by Expolite. It was compiled from the GDTF file Expolite_WD_120_FX_167985.gdtf from the GDTF-Share library.

File revision: “WD 120 FX”.

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 Expolite; 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	7 kg

DMX modes

Mode	Channels	Units in one universe	First start addresses
21CH	21	24	1, 22, 43, 64, ...
39CH	39	13	1, 40, 79, 118, ...
223CH	223	2	1, 224

No light? Check these channels

- 21CH: CH 4 Dimmer above 0; CH 5 Shutter at 251–255 “open”
- 39CH: CH 8 Dimmer 1 above 0; CH 10 Shutter 1 at 251–255 “open”; CH 19 Dimmer 2 above 0; CH 24 Shutter 2 at 251–255 “open”; CH 25 Dimmer 3 above 0; CH 30 Shutter 3 at 251–255 “open”
- 223CH: CH 8 Dimmer 1 above 0; CH 10 Shutter 1 at 251–255 “open”; CH 19 Dimmer 2 above 0; CH 20 Shutter 2 at 251–255 “open”; CH 21 Dimmer 3 above 0; CH 22 Shutter 3 at 251–255 “open”


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

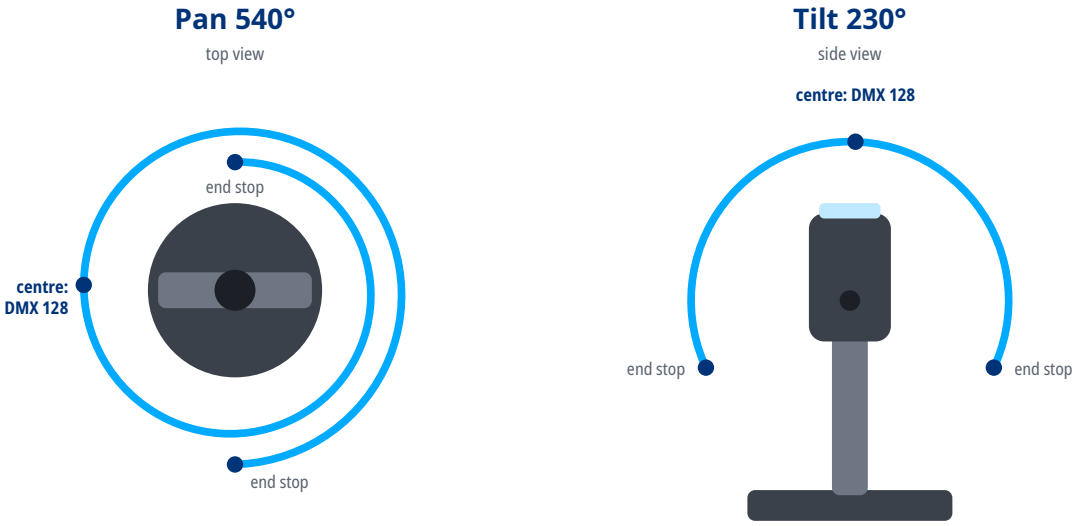
- Strobe and fast flashing light effects can trigger epileptic seizures in susceptible people (photosensitive epilepsy) and can cause nausea or disorientation.
- Inform the audience and performers in advance that strobe effects will be used, for example with a notice at the entrance, and do not use them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

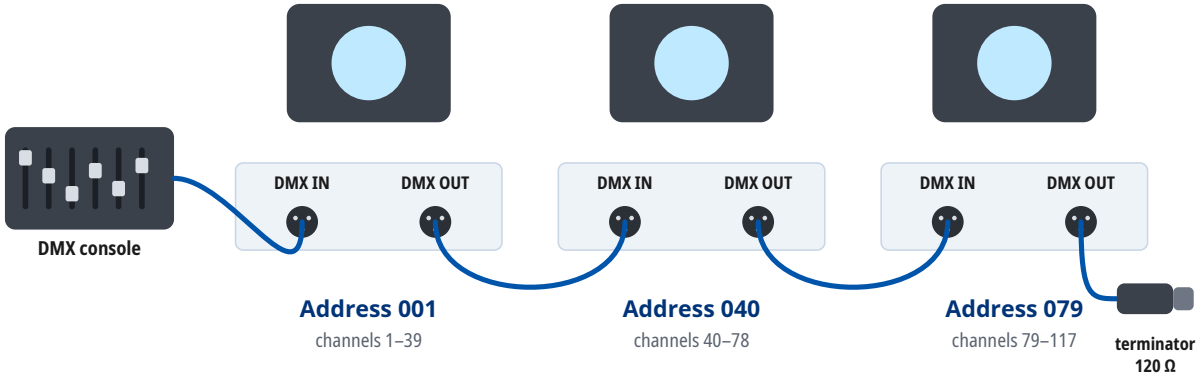
- Rigging must be carried out only by qualified persons in accordance with applicable regulations, in particular those for work at height.
- The supporting structure and fixings must safely carry the weight of all suspended devices; verify their load capacity in advance.
- Weight of the device: 7 kg.
- 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 39CH: every unit occupies 39 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

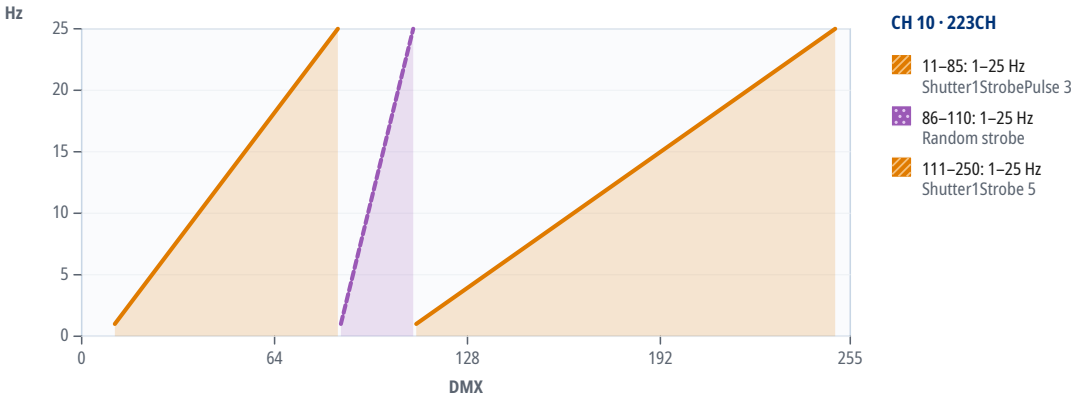
- The device occupies as many consecutive channels in the DMX universe as the selected DMX mode uses, starting at the set start address.
- Number of channels occupied in the DMX mode “223CH”: 223.
- Choose start addresses so that the channels of individual devices do not overlap and the last occupied 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 “223CH”, you can use, for example, the start addresses 1, 224.
- 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

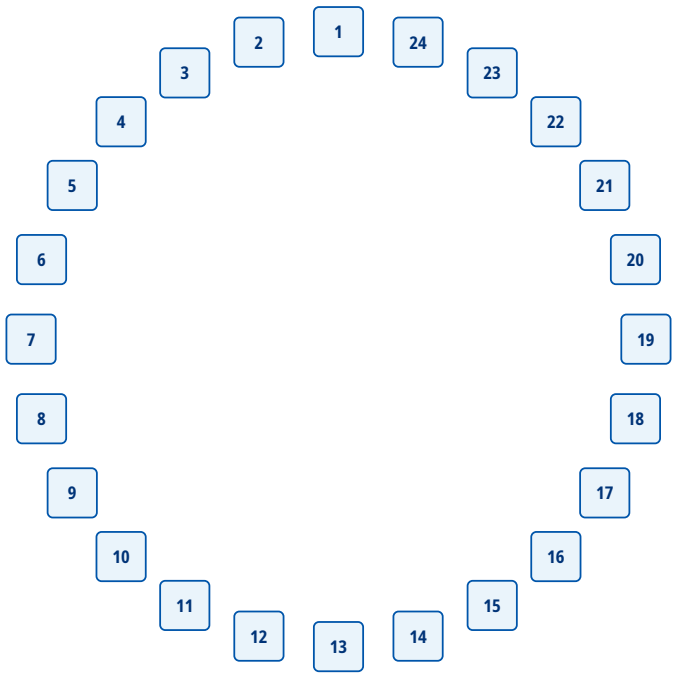
Functions in each DMX mode

	21CH 21 channels	39CH 39 channels	223CH 223 channels
Pan / Tilt	**1, 2**	**1, 3**	**1, 3**
Pan / Tilt resolution	8 bit	16 bit	16 bit
Dimmer	**4**	**8, 19, 25**	**8, 19, 21**
Dimmer resolution	8 bit	16 bit	16 bit
Shutter / strobe	**5**	**10, 24, 30**	**10, 20, 22**
Color mixing	**6–13**	**12 channels (11–29)**	**196 channels (11–223)**
Color temperature	**14**	**31, 32**	**23, 24**
Zoom	**3**	**6**	**6**
Effects / macros	**15–19**	**33–37**	**25–29**
Pixel control		✓	**48 cells**

Strobe rate



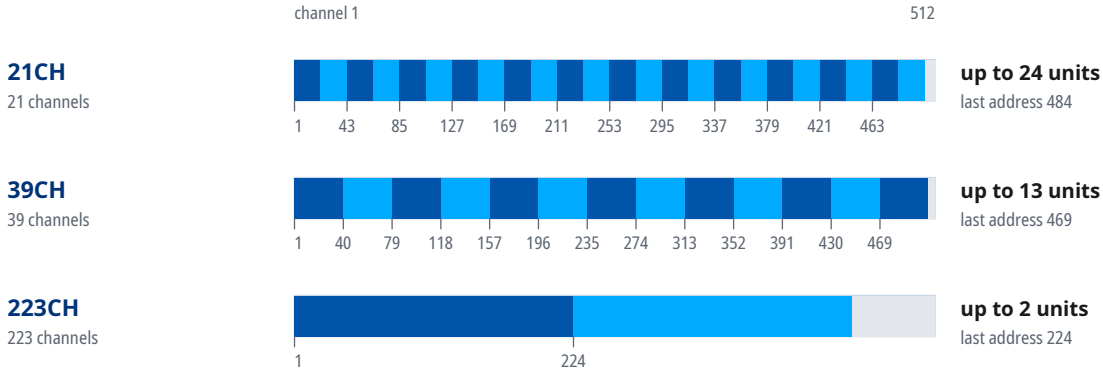
Cells (pixels)



Cells where the GDTF file places them (seen from above), 24 in all; numbered in the order of their first DMX channel in the mode “223CH”.

9 DMX channels

Units in one DMX universe



Start addresses of 20 units in the mode “223CH”

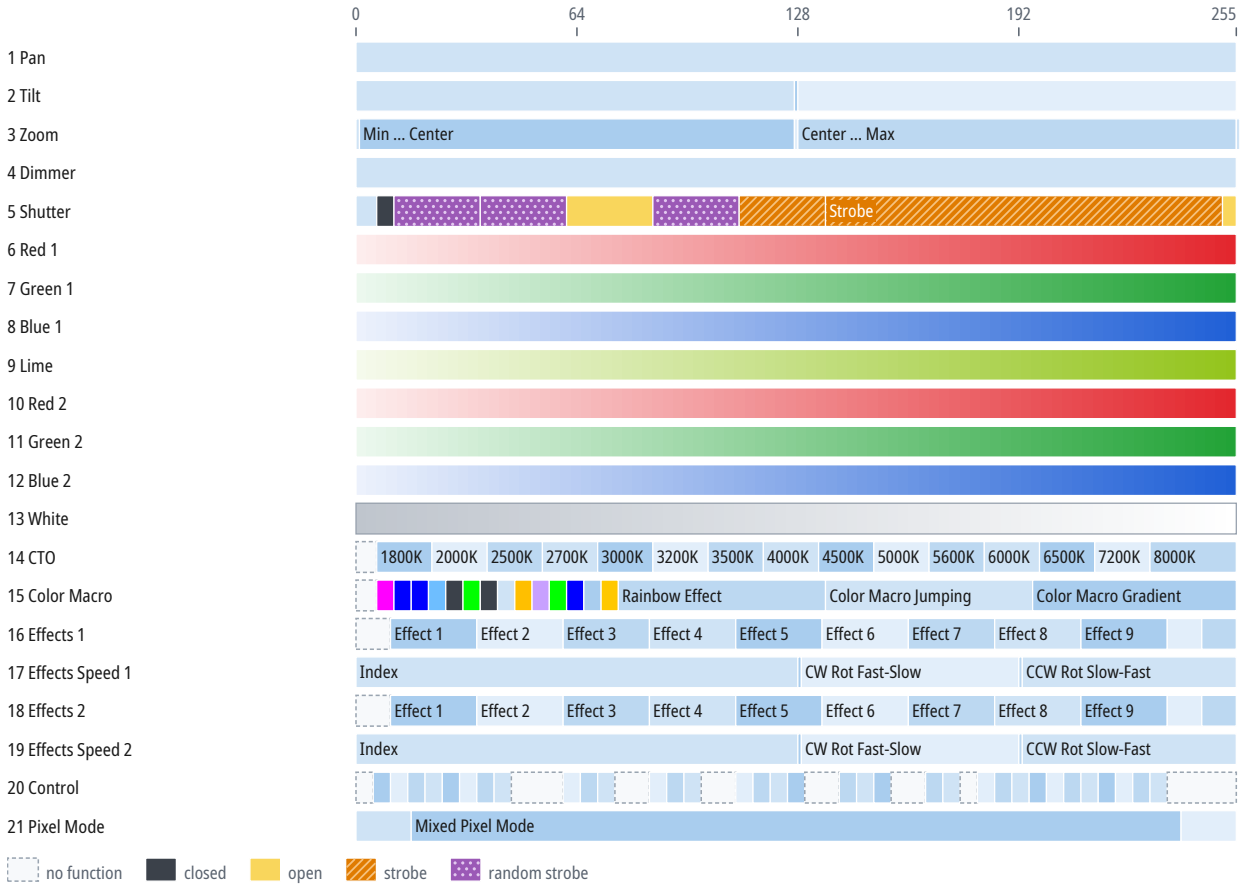
Unit	Start address	Unit	Start address	Unit	Start address	Unit	Start address
1	1	6	U3 · 224	11	U6 · 1	16	U8 · 224
2	224	7	U4 · 1	12	U6 · 224	17	U9 · 1
3	U2 · 1	8	U4 · 224	13	U7 · 1	18	U9 · 224
4	U2 · 224	9	U5 · 1	14	U7 · 224	19	U10 · 1
5	U3 · 1	10	U5 · 224	15	U8 · 1	20	U10 · 224

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 21CH

If the device receives DMX in this mode but gives no light, check these channels: CH 4 Dimmer above 0; CH 5 Shutter at 251–255 “open”. The GDTF file gives these values for a console's Highlight function: CH 4 Dimmer 100, CH 6 Red 1 255, CH 7 Green 1 255, CH 8 Blue 1 255, CH 10 Red 2 255, CH 11 Green 2 255, CH 12 Blue 2 255.

Channel functions at a glance



CH	Function	DMX	Description
1	Pan	0–255	540°
2	Tilt	0–126	Tilt 1
		127	Home
		128–255	Tilt 1
3	Zoom	0	Min
		1–126	Min ... Center
		127	Center
		128–254	Center ... Max
		255	Max
4	Dimmer	0–255	
5	Shutter	0–5	Opne
		6–10	Close
		11–35	Puls Random
		36–60	Ramp up Random

CH	Function	DMX	Description
5	Shutter (continued)	61–85	Ramp down Randon
		86–110	Random strobe (1–25 Hz)
		111–135	Strobe Break
		136–250	Strobe
		251–255	Open
6	Red 1	0–255	
7	Green 1	0–255	
8	Blue 1	0–255	
9	Lime	0–255	
10	Red 2	0–255	
11	Green 2	0–255	
12	Blue 2	0–255	
13	White	0–255	
14	CTO	0–5	No Function
		6–21	1800K
		22–37	2000K
		38–53	2500K
		54–69	2700K
		70–85	3000K
		86–101	3200K
		102–117	3500K
		118–133	4000K
		134–149	4500K
		150–165	5000K
		166–181	5600K
		182–197	6000K
		198–213	6500K
		214–229	7200K
		230–255	8000K
15	Color Macro	0–5	No Function
		6–10	Magenta
		11–15	Peacock Blue
		16–20	Steel Blue
		21–25	Light Blue
		26–30	Dark Blue
		31–35	Leaf Green
		36–40	Dark Green
		41–45	Mauve
		46–50	Deep Golden Amber
		51–55	Pale Lavender
		56–60	Primary Green
		61–65	Bright Blue

CH	Function	DMX	Description
15	Color Macro (continued)	66–70	Apricot
		71–75	Pale Gold
		76–135	Rainbow Effect
		136–195	Color Macro Jumping
		196–255	Color Macro Gradient
16	Effects 1	0–9	No Function
		10–34	Effect 1
		35–59	Effect 2
		60–84	Effect 3
		85–109	Effect 4
		110–134	Effect 5
		135–159	Effect 6
		160–184	Effect 7
		185–209	Effect 8
		210–234	Effect 9
		235–244	Effect 10
		245–255	Effect Loop 1-10
17	Effects Speed 1	0–127	Index
		128	Stop
		129–191	CW Rot Fast-Slow
		192	Stop
		193–255	CCW Rot Slow-Fast
18	Effects 2	0–9	No Function
		10–34	Effect 1
		35–59	Effect 2
		60–84	Effect 3
		85–109	Effect 4
		110–134	Effect 5
		135–159	Effect 6
		160–184	Effect 7
		185–209	Effect 8
		210–234	Effect 9
		235–244	Effect 10
		245–255	Effect Loop 1-10
19	Effects Speed 2	0–127	Index
		128	Stop
		129–191	CW Rot Fast-Slow
		192	Stop
		193–255	CCW Rot Slow-Fast
20	Control	0–4	No Function
		5–9	Display Always On
		10–14	Display 10 Seconds

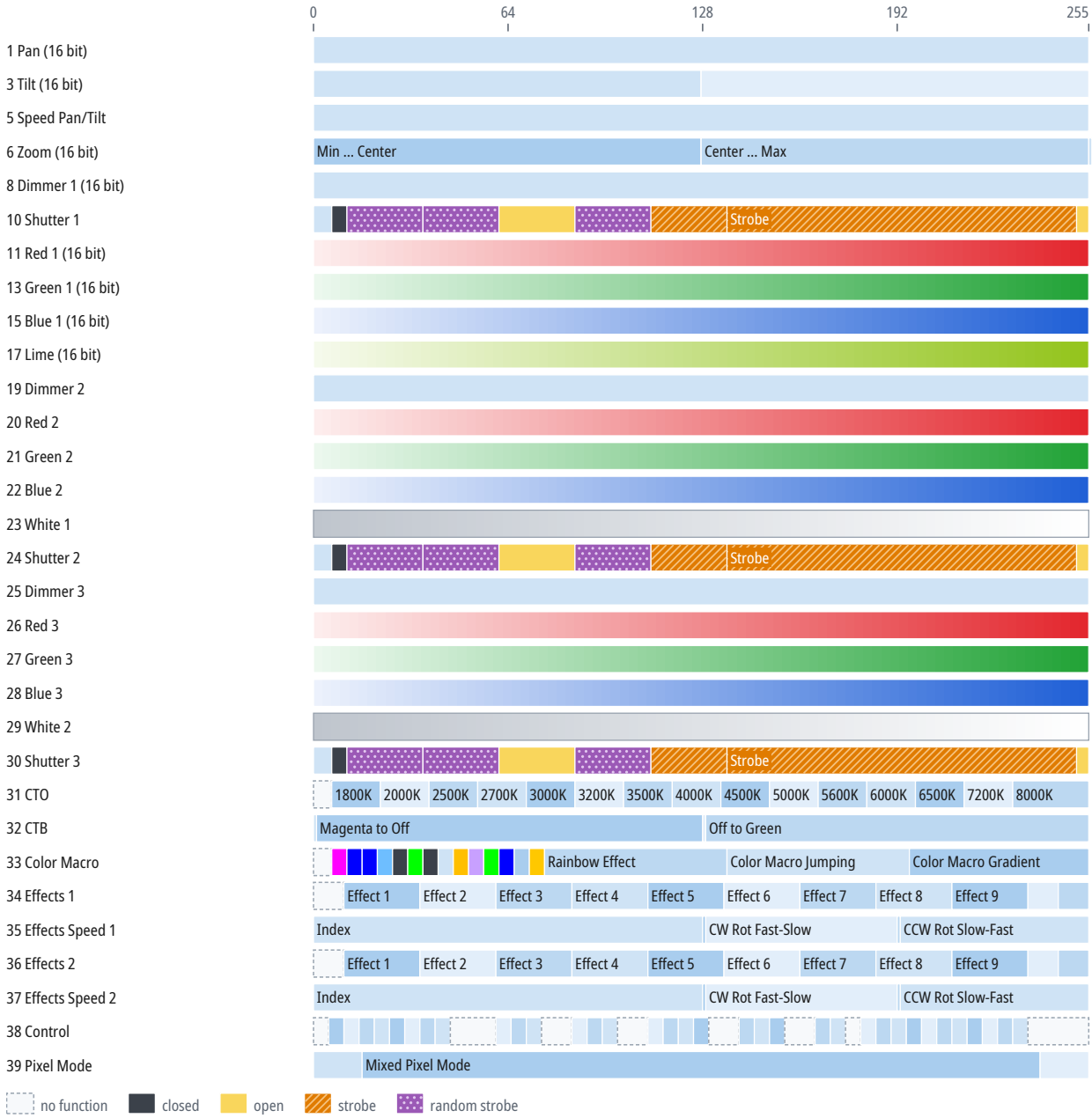
CH	Function	DMX	Description
20	Control (continued)	15–19	Display 30 Seconds
		20–24	Display 1 Min
		25–29	Screen Lock Off
		30–34	Screen Lock On
		35–39	Signal Hold
		40–44	Black Field
		45–59	No Function
		60–64	Standard Dimming
		65–69	Fast Dimming
		70–74	Slow Dimming
		75–84	No Function
		85–89	Linear
		90–94	Square
		95–99	S Curve
		100–109	No Function
		110–114	4000hz
		115–119	8000hz
		120–124	16000hz
		125–129	24000hz
		130–139	No Function
		140–144	Fan Automatic
		145–149	Silent Fan
		150–154	Fan Full On
		155–164	No Function
		165–169	Red Drift Off
		170–174	Red Drift On
		175–179	No Function
		180–184	Pan Reverse Off
		185–189	Pan Reverse On
		190–194	Pan Error Correction Off
		195–199	Pan Error Correction On
		200–204	Tilt Reverse Off
		205–209	Tilt Reverse On
		210–214	Tilt Error Correction Off
		215–219	Tilt Error Correction On
		220–224	Pan Tilt Reset
		225–229	Zoom Reset
		230–234	Reset All
		235–255	No Function
21	Pixel Mode	0–15	DMX Mode
		16–238	Mixed Pixel Mode
		239–255	ArtNet Mode

Mode 39CH

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 Dimmer 1 above 0; CH 10 Shutter 1 at 251–255 “open”; CH 19 Dimmer 2 above 0; CH 24 Shutter 2 at 251–255 “open”; CH 25 Dimmer 3 above 0; CH 30 Shutter 3 at 251–255 “open”. The GDTF file gives these values for a console's Highlight function: CH 8 Dimmer 1 0, CH 11 Red 1 255, CH 13 Green 1 255, CH 15 Blue 1 255, CH 19 Dimmer 2 255, CH 20 Red 2 255, CH 21 Green 2 255, CH 22 Blue 2 255, CH 25 Dimmer 3 255, CH 26 Red 3 255, CH 27 Green 3 255, CH 28 Blue 3 255.

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	0–127	Tilt 1
		127	Home
		128–255	Tilt 1
4	Tilt Fine	0–255	Fine adjustment of CH 3
5	Speed Pan/Tilt	0–255	
6	Zoom	0–127	Min ... Center
		127	Center
		128–255	Center ... Max
		255	Max
7	Zoom Fine	0–255	Fine adjustment of CH 6
8	Dimmer 1	0–255	
9	Dimmer 1 Fine	0–255	Fine adjustment of CH 8
10	Shutter 1	0–5	Opne
		6–10	Close
		11–35	Puls Random
		36–60	Ramp up Random
		61–85	Ramp down Randon
		86–110	Random strobe (1–25 Hz)
		111–135	Strobe Break
		136–250	Strobe
		251–255	Open
11	Red 1	0–255	
12	Red 1 Fine	0–255	Fine adjustment of CH 11
13	Green 1	0–255	
14	Green 1 Fine	0–255	Fine adjustment of CH 13
15	Blue 1	0–255	
16	Blue 1 Fine	0–255	Fine adjustment of CH 15
17	Lime	0–255	
18	Lime Fine	0–255	Fine adjustment of CH 17
19	Dimmer 2	0–255	
20	Red 2	0–255	
21	Green 2	0–255	
22	Blue 2	0–255	
23	White 1	0–255	
24	Shutter 2	0–5	Opne
		6–10	Close
		11–35	Puls Random
		36–60	Ramp up Random

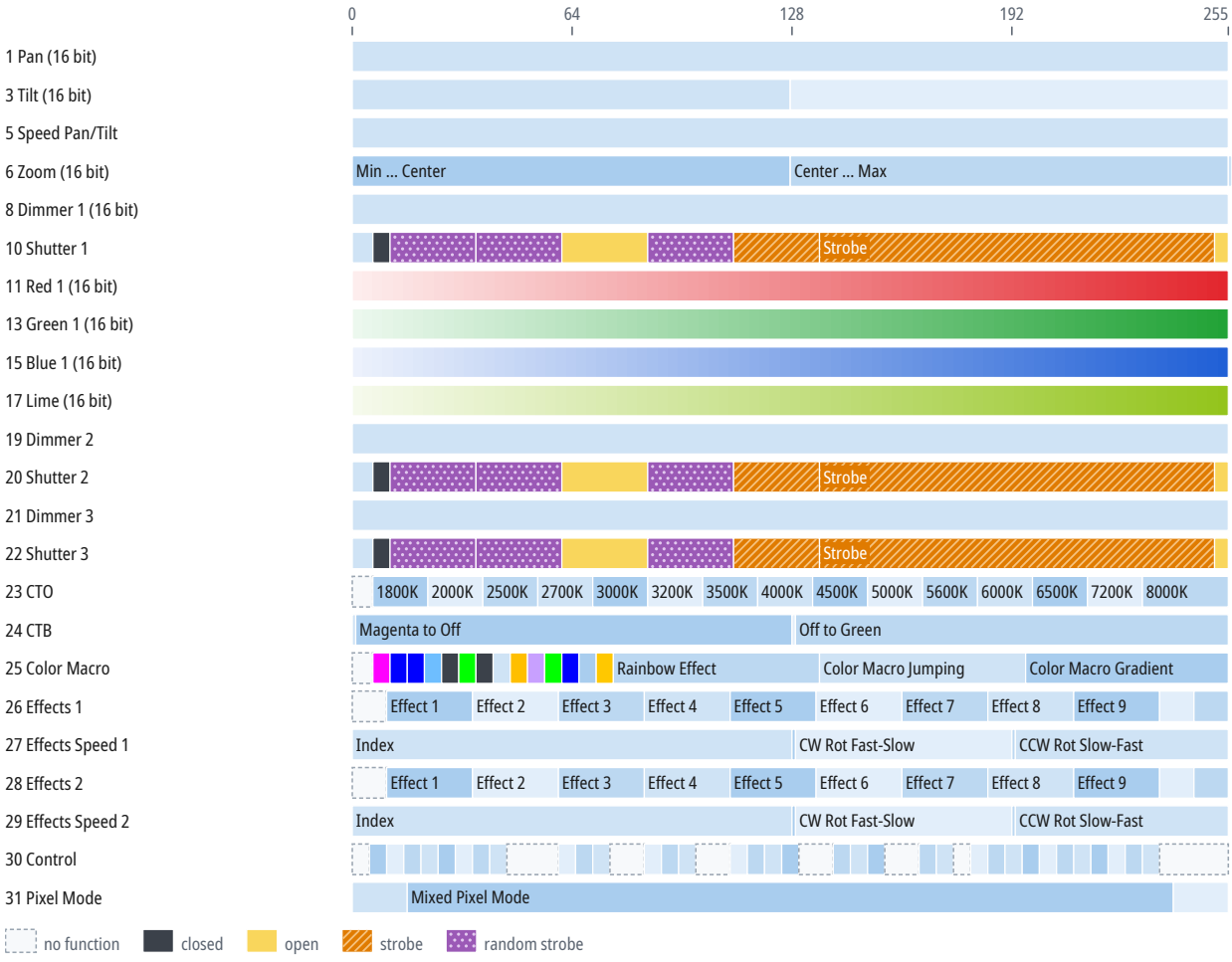
CH	Function	DMX	Description
24	Shutter 2 (continued)	61–85	Ramp down Randon
		86–110	Random strobe (1–25 Hz)
		111–135	Strobe Break
		136–250	Strobe
		251–255	Open
25	Dimmer 3	0–255	
26	Red 3	0–255	
27	Green 3	0–255	
28	Blue 3	0–255	
29	White 2	0–255	
30	Shutter 3	0–5	Opne
		6–10	Close
		11–35	Puls Random
		36–60	Ramp up Random
		61–85	Ramp down Randon
		86–110	Random strobe (1–25 Hz)
		111–135	Strobe Break
		136–250	Strobe
		251–255	Open
31	CTO		Same as CH 14 in the mode “21CH” (p. 11)
32	CTB	0	Color Temp Comp Off
		1–127	Magenta to Off
		128	Color Temp Comp Off
		129–255	Off to Green
33	Color Macro		Same as CH 15 in the mode “21CH” (p. 11)
34	Effects 1		Same as CH 16 in the mode “21CH” (p. 12)
35	Effects Speed 1		Same as CH 17 in the mode “21CH” (p. 12)
36	Effects 2		Same as CH 18 in the mode “21CH” (p. 12)
37	Effects Speed 2		Same as CH 19 in the mode “21CH” (p. 12)
38	Control		Same as CH 20 in the mode “21CH” (p. 12)
39	Pixel Mode		Same as CH 21 in the mode “21CH” (p. 13)

Mode 223CH

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 Dimmer 1 above 0; CH 10 Shutter 1 at 251–255 “open”; CH 19 Dimmer 2 above 0; CH 20 Shutter 2 at 251–255 “open”; CH 21 Dimmer 3 above 0; CH 22 Shutter 3 at 251–255 “open”. The GDTF file gives these values for a console's Highlight function: CH 8 Dimmer 1 0, CH 11 Red 1 255, CH 13 Green 1 255, CH 15 Blue 1 255, CH 19 Dimmer 2 255, CH 21 Dimmer 3 255, CH 32 Red 255 (the same in each of the 48 cells), CH 33 Green 255 (the same in each of the 48 cells), CH 34 Blue 255 (the same in each of the 48 cells).

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		Same as CH 3 in the mode “39CH” (p. 15)
4	Tilt Fine	0–255	Fine adjustment of CH 3
5	Speed Pan/Tilt	0–255	
6	Zoom		Same as CH 6 in the mode “39CH” (p. 15)
7	Zoom Fine	0–255	Fine adjustment of CH 6
8	Dimmer 1	0–255	
9	Dimmer 1 Fine	0–255	Fine adjustment of CH 8

CH	Function	DMX	Description
10	Shutter 1		Same as CH 10 in the mode “39CH” (p. 15)
11	Red 1	0–255	
12	Red 1 Fine	0–255	Fine adjustment of CH 11
13	Green 1	0–255	
14	Green 1 Fine	0–255	Fine adjustment of CH 13
15	Blue 1	0–255	
16	Blue 1 Fine	0–255	Fine adjustment of CH 15
17	Lime	0–255	
18	Lime Fine	0–255	Fine adjustment of CH 17
19	Dimmer 2	0–255	
20	Shutter 2		Same as CH 24 in the mode “39CH” (p. 15)
21	Dimmer 3	0–255	
22	Shutter 3		Same as CH 30 in the mode “39CH” (p. 16)
23	CTO		Same as CH 14 in the mode “21CH” (p. 11)
24	CTB		Same as CH 32 in the mode “39CH” (p. 16)
25	Color Macro		Same as CH 15 in the mode “21CH” (p. 11)
26	Effects 1		Same as CH 16 in the mode “21CH” (p. 12)
27	Effects Speed 1		Same as CH 17 in the mode “21CH” (p. 12)
28	Effects 2		Same as CH 18 in the mode “21CH” (p. 12)
29	Effects Speed 2		Same as CH 19 in the mode “21CH” (p. 12)
30	Control		Same as CH 20 in the mode “21CH” (p. 12)
31	Pixel Mode		Same as CH 21 in the mode “21CH” (p. 13)
32	Red 2	0–255	
33	Green 2	0–255	
34	Blue 2	0–255	
35	White 1	0–255	

CH 32–223: 48 cells of 4 channels each. Every cell works as cell 1 in the table above (CH 32–35); the table below gives each cell's channel numbers.

Cell	Red	Green	Blue	White	Cell	Red	Green	Blue	White
1	32	33	34	35	2	36	37	38	39
3	40	41	42	43	4	44	45	46	47
5	48	49	50	51	6	52	53	54	55
7	56	57	58	59	8	60	61	62	63
9	64	65	66	67	10	68	69	70	71
11	72	73	74	75	12	76	77	78	79
13	80	81	82	83	14	84	85	86	87
15	88	89	90	91	16	92	93	94	95
17	96	97	98	99	18	100	101	102	103
19	104	105	106	107	20	108	109	110	111
21	112	113	114	115	22	116	117	118	119
23	120	121	122	123	24	124	125	126	127
25	128	129	130	131	26	132	133	134	135

Cell	Red	Green	Blue	White	Cell	Red	Green	Blue	White
27	136	137	138	139	28	140	141	142	143
29	144	145	146	147	30	148	149	150	151
31	152	153	154	155	32	156	157	158	159
33	160	161	162	163	34	164	165	166	167
35	168	169	170	171	36	172	173	174	175
37	176	177	178	179	38	180	181	182	183
39	184	185	186	187	40	188	189	190	191
41	192	193	194	195	42	196	197	198	199
43	200	201	202	203	44	204	205	206	207
45	208	209	210	211	46	212	213	214	215
47	216	217	218	219	48	220	221	222	223

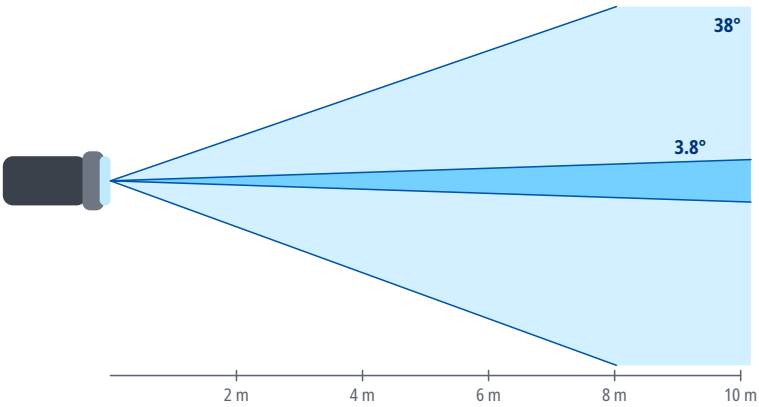
10 Technical specifications

Parameter	Value
Zoom	3.8–38°
Pan	540°
Tilt	230°
RDM	yes (manufacturer ID 0x2337, device model ID 0x0023)
Weight	7 kg
Operating temperature	-20 to 40 °C

Speeds and ranges

Parameter	Value
Color temperature range	1800–8000 K
Strobe frequency	1–25 Hz

Spot diameter



Distance	Ø 3.8°	Ø 38°
2 m	0.13 m	1.4 m
4 m	0.27 m	2.8 m
6 m	0.4 m	4.1 m
8 m	0.53 m	5.5 m
10 m	0.66 m	6.9 m
15 m	1 m	10.3 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.