DMX REFERENCE

Dataflash 5000

High End Systems



Manufacturer	High End Systems
GDTF file	High_End_Systems_Dataflash_5000_126059.gdtf
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1 About this manual

This document describes the Dataflash 5000 by High End Systems. It was compiled from the GDTF file High_End_Systems_Dataflash_5000_126059.gdtf from the GDTF-Share library.

File revision: “v0.13, Uploaded to GDTF Share.”.

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 High End Systems; 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
Reduced	7	73	1, 8, 15, 22, ...
Standard	19	26	1, 20, 39, 58, ...
Expanded	54	9	1, 55, 109, 163, ...

No light? Check these channels

- Reduced: CH 1 Dimmer above 0; CH 4 Strobe Speed at 255 “Open”
- Standard: CH 1 Dimmer 1 above 0; CH 4 Strobe Speed 1 at 255 “Open”; CH 13 Dimmer 2 above 0; CH 16 Strobe Speed 2 at 255 “Open”
- Expanded: CH 1 Dimmer 1 above 0; CH 4 Strobe Speed 1 at 255 “Open”; CH 14 Strobe Speed 2 at 255 “Open”; CH 18 Dimmer above 0 (the same in each of the 8 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.

4 Product description

Description in the GDTF file

“High End Systems Dataflash 5000 Official File.”

5 Installation

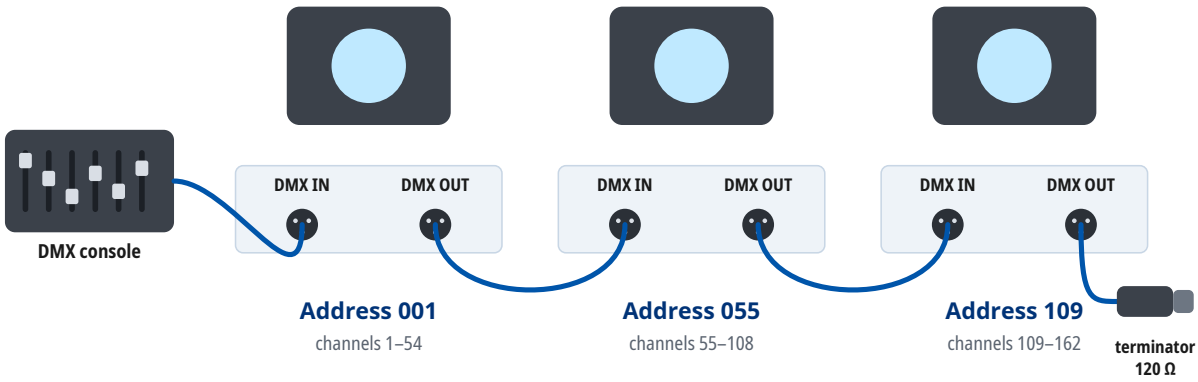
⚠ WARNING

- 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.
- 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 Expanded: every unit occupies 54 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

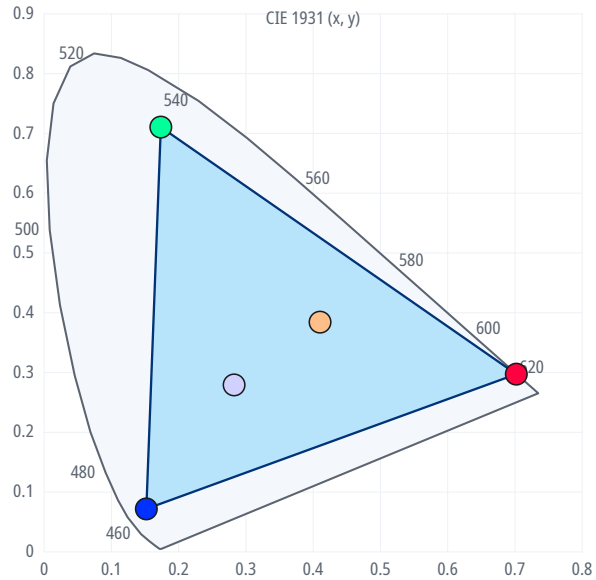
- The device occupies as many consecutive channels in the DMX universe as the selected DMX mode uses, starting at the set start address.
- Number of channels occupied in the DMX mode “Expanded”: 54.
- Choose start addresses so that the channels of individual devices do not overlap and the last occupied 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 “Expanded”, you can use, for example, the start addresses 1, 55, 109, 163.
- 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

	Reduced 7 channels	Standard 19 channels	Expanded 54 channels
Dimmer	1	1, 13	9 channels (1–53)
Shutter / strobe	4, 5	4, 5, 16	4, 5, 14
Color mixing		17–19	24 channels (15–52)
Color temperature		10	10
Effects / macros	6	8, 9	8, 9
Pixel control			8 cells

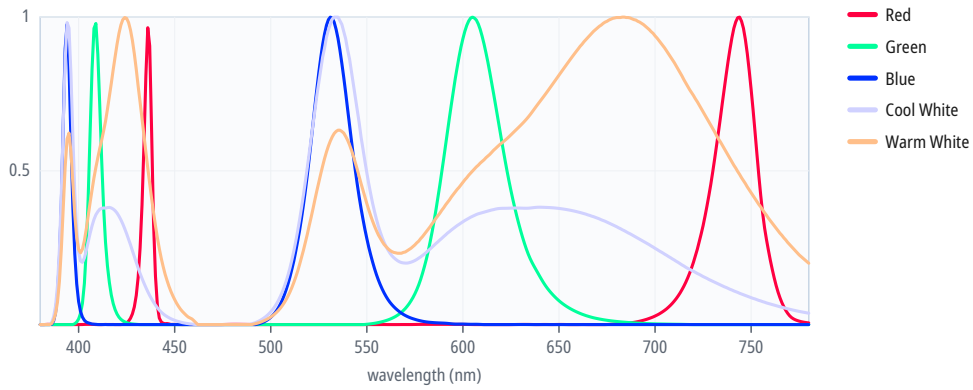
LED colors and the colors they mix



LED	x	y	nm
Red	0.702	0.297	626
Green	0.173	0.711	527
Blue	0.152	0.072	452
Cool White	0.282	0.279	
Warm White	0.410	0.384	

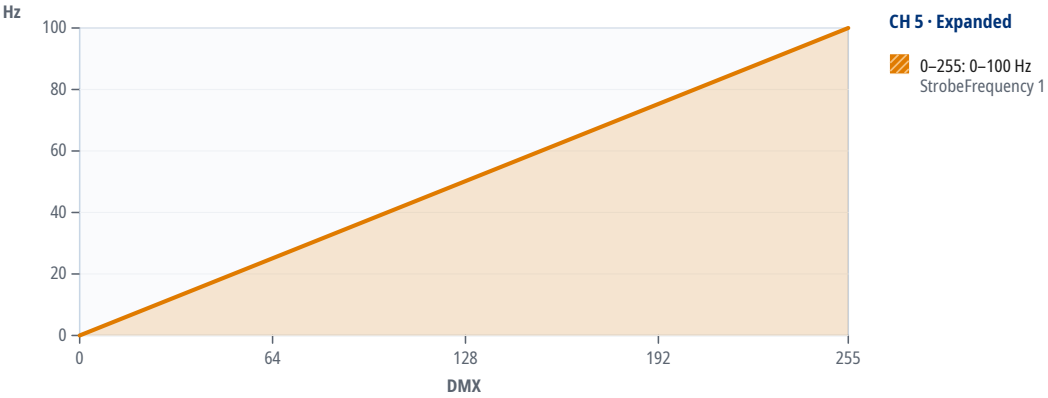
The shaded area holds the colors the LEDs can mix; the dots are the LED colors the GDTF file states.

Spectra of the light sources

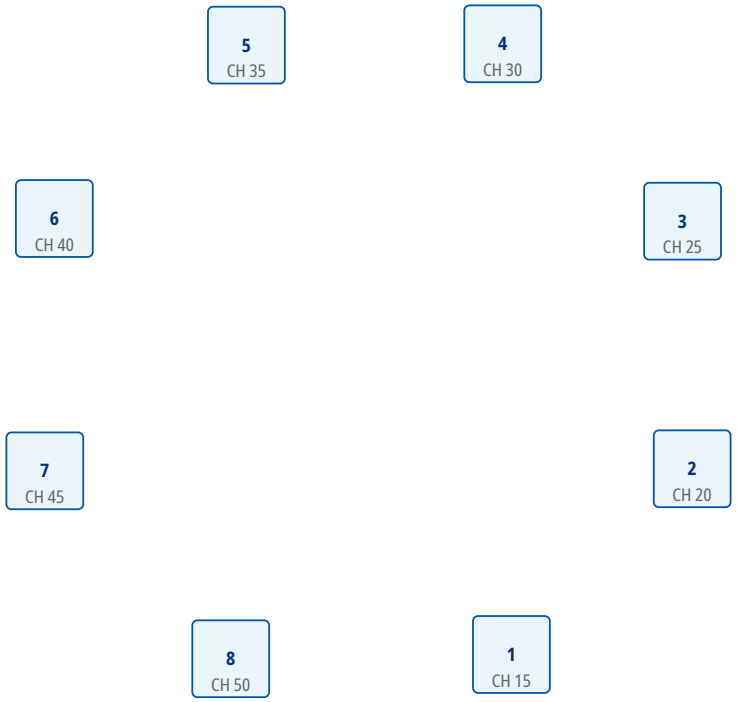


Relative spectrum of each light source as the GDTF file states it; each curve is scaled to its own maximum.

Strobe rate



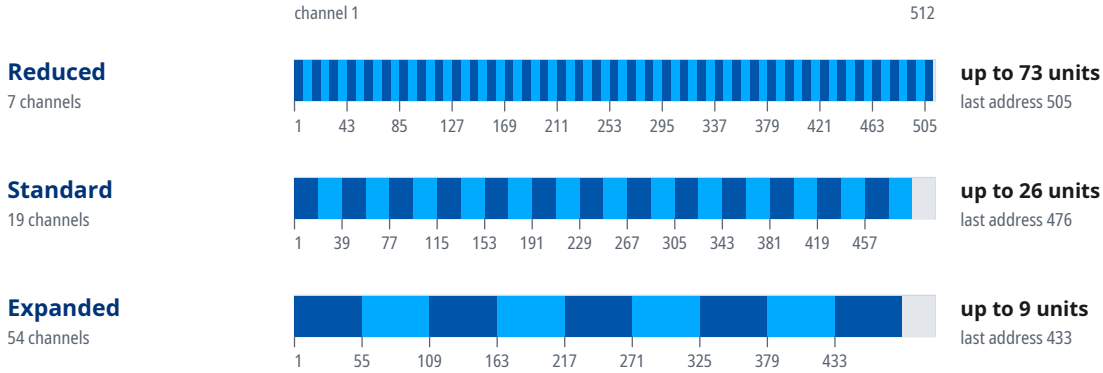
Cells (pixels)



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

9 DMX channels

Units in one DMX universe



Start addresses of 20 units in the mode “Expanded”

Unit	Start address	Unit	Start address	Unit	Start address	Unit	Start address
1	1	6	271	11	U2 · 55	16	U2 · 325
2	55	7	325	12	U2 · 109	17	U2 · 379
3	109	8	379	13	U2 · 163	18	U2 · 433
4	163	9	433	14	U2 · 217	19	U3 · 1
5	217	10	U2 · 1	15	U2 · 271	20	U3 · 55

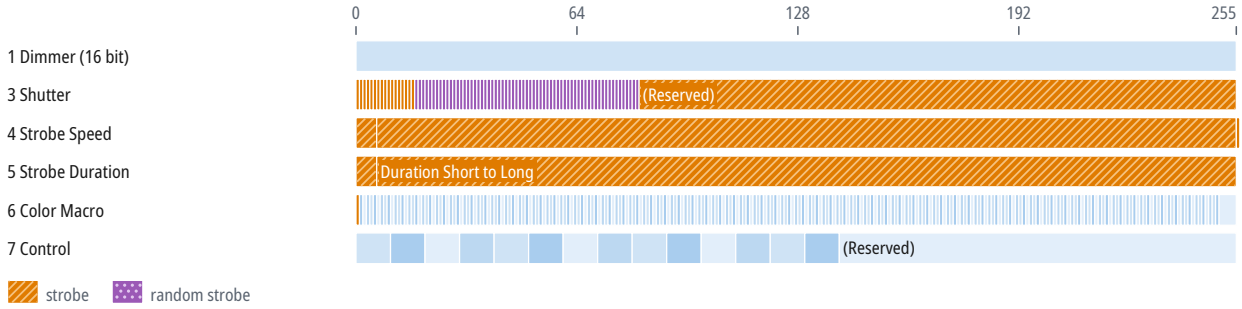
Where a DMX universe is full, the next units continue in the next universe: “U2 · 1” is address 1 in the second universe, counted from the universe of the first unit.

Mode Reduced

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 1 Dimmer above 0; CH 4 Strobe Speed at 255 “Open”.

Channel functions at a glance



CH	Function	DMX	Description
1	Dimmer	0–255	
2	Dimmer Fine	0–255	Fine adjustment of CH 1
3	Shutter	0	Off/Continuous
		1	Synchronous Snap/Snap
		2	Lightning

CH	Function	DMX	Description
3	Shutter (continued)	3	Tungsten Blinder
		4	Synchronous Snap/Snap
		5	Synchronous Ramp/Snap
		6	Synchronous Snap/Ramp
		7	Synchronous Ramp/Ramp
		8	Synchronous Step/Snap
		9	Synchronous Snap/Step
		10	Synchronous Step/Step
		11	Synchronous Pulse/Step
		12	Synchronous Step/Pulse
		13	Synchronous Pulse/Pulse
		14	Synchronous Sine/Step
		15	Synchronous Step/Sine
		16	Synchronous Sine/Sine
		17	Synchronous Random Snap/Snap
		18	Synchronous Random Ramp/Snap
		19	Synchronous Random Snap/Ramp
		20	Synchronous Random Ramp/Ramp
		21	Synchronous Random Step/Snap
		22	Synchronous Random Snap/Step
		23	Synchronous Random Step/Step
		24	Synchronous Random Pulse/Step
		25	Synchronous Random Step/Pulse
		26	Synchronous Random Pulse/Pulse
		27	Synchronous Random Sine/Step
		28	Synchronous Random Step/Sine
		29	Synchronous Random Sine/Sine
		30	Random Snap/Snap
		31	Random Ramp/Snap
		32	Random Snap/Ramp
		33	Random Ramp/Ramp
		34	Random Step/Snap
		35	Random Snap/Step
		36	Random Step/Step
		37	Random Pulse/Step
		38	Random Step/Pulse
		39	Random Pulse/Pulse
		40	Random Sine/Step
		41	Random Step/Sine
		42	Random Sine/Sine
		43	Random Pixel Snap/Snap
		44	Random Pixel Ramp/Snap

CH	Function	DMX	Description
3	Shutter (continued)	45	Random Pixel Snap/Ramp
		46	Random Pixel Ramp/Ramp
		47	Random Pixel Step/Snap
		48	Random Pixel Snap/Step
		49	Random Pixel Step/Step
		50	Random Pixel Pulse/Step
		51	Random Pixel Step/Pulse
		52	Random Pixel Pulse/Pulse
		53	Random Pixel Sine/Step
		54	Random Pixel Step/Sine
		55	Random Pixel Sine/Sine
		56	Random Pixel/Color Snap/Snap
		57	Random Pixel/Color Ramp/Snap
		58	Random Pixel/Color Snap/Ramp
		59	Random Pixel/Color Ramp/Ramp
		60	Random Pixel/Color Step/Snap
		61	Random Pixel/Color Snap/Step
		62	Random Pixel/Color Step/Step
		63	Random Pixel/Color Pulse/Step
		64	Random Pixel/Color Step/Pulse
		65	Random Pixel/Color Pulse/Pulse
		66	Random Pixel/Color Sine/Step
		67	Random Pixel/Color Step/Sine
		68	Random Pixel/Color Sine/Sine
		69	Random Color Snap/Snap
		70	Random Color Ramp/Snap
		71	Random Color Snap/Ramp
		72	Random Color Ramp/Ramp
		73	Random Color Step/Snap
		74	Random Color Snap/Step
		75	Random Color Step/Step
		76	Random Color Pulse/Step
		77	Random Color Step/Pulse
		78	Random Color Pulse/Pulse
		79	Random Color Sine/Step
		80	Random Color Step/Sine
		81	Random Color Sine/Sine
		82–255	(Reserved)
4	Strobe Speed	0–5	Off
		6–254	Strobe Rate (0.8–31.2 Hz)
		255	Open
5	Strobe Duration	0–5	Duration based on Rate

CH	Function	DMX	Description
5	Strobe Duration (continued)	6–255	Duration Short to Long
6	Color Macro	0	Standard Strobe
		1	7500K/7500K
		2	6000K/6000K
		3	4400K/4400K
		4	3200K/3200K
		5	7500K/-
		6	6000K/-
		7	4400K/-
		8	3200K/-
		9	7500K/Red 100%
		10	6000K/Red 100%
		11	4400K/Red 100%
		12	3200K/Red 100%
		13	Off/Red 100%
		14	7500K/Red 50%
		15	6000K/Red 50%
		16	4400K/Red 50%
		17	3200K/Red 50%
		18	Off/Red 50%
		19	7500K/Red 25%
		20	6000K/Red 25%
		21	4400K/Red 25%
		22	3200K/Red 25%
		23	Off/Red 25%
		24	7500K/Red 10%
		25	6000K/Red 10%
		26	4400K/Red 10%
		27	3200K/Red 10%
		28	Off/Red 10%
		29	7500K/Orange 100%
		30	6000K/Orange 100%
		31	4400K/Orange 100%
		32	3200K/Orange 100%
		33	Off/Orange 100%
		34	7500K/Orange 50%
		35	6000K/Orange 50%
		36	4400K/Orange 50%
		37	3200K/Orange 50%
		38	Off/Orange 50%
		39	7500K/Orange 25%
		40	6000K/Orange 25%

CH	Function	DMX	Description
6	Color Macro (continued)	41	4400K/Orange 25%
		42	3200K/Orange 25%
		43	Off/Orange 25%
		44	7500K/Orange 10%
		45	6000K/Orange 10%
		46	4400K/Orange 10%
		47	3200K/Orange 10%
		48	Off/Orange 10%
		49	7500K/Yellow 100%
		50	6000K/Yellow 100%
		51	4400K/Yellow 100%
		52	3200K/Yellow 100%
		53	Off/Yellow 100%
		54	7500K/Yellow 50%
		55	6000K/Yellow 50%
		56	4400K/Yellow 50%
		57	3200K/Yellow 50%
		58	Off/Yellow 50%
		59	7500K/Yellow 25%
		60	6000K/Yellow 25%
		61	4400K/Yellow 25%
		62	3200K/Yellow 25%
		63	Off/Yellow 25%
		64	7500K/Yellow 10%
		65	6000K/Yellow 10%
		66	4400K/Yellow 10%
		67	3200K/Yellow 10%
		68	Off/Yellow 10%
		69	7500K/Green 100%
		70	6000K/Green 100%
		71	4400K/Green 100%
		72	3200K/Green 100%
		73	Off/Green 100%
		74	7500K/Green 50%
		75	6000K/Green 50%
		76	4400K/Green 50%
		77	3200K/Green 50%
		78	Off/Green 50%
		79	7500K/Green 25%
		80	6000K/Green 25%
		81	4400K/Green 25%
		82	3200K/Green 25%

CH	Function	DMX	Description
6	Color Macro (continued)	83	Off/Green 25%
		84	7500K/Green 10%
		85	6000K/Green 10%
		86	4400K/Green 10%
		87	3200K/Green 10%
		88	Off/Green 10%
		89	7500K/Cyan 100%
		90	6000K/Cyan 100%
		91	4400K/Cyan 100%
		92	3200K/Cyan 100%
		93	Off/Cyan 100%
		94	7500K/Cyan 50%
		95	6000K/Cyan 50%
		96	4400K/Cyan 50%
		97	3200K/Cyan 50%
		98	Off/Cyan 50%
		99	7500K/Cyan 25%
		100	6000K/Cyan 25%
		101	4400K/Cyan 25%
		102	3200K/Cyan 25%
		103	Off/Cyan 25%
		104	7500K/Cyan 10%
		105	6000K/Cyan 10%
		106	4400K/Cyan 10%
		107	3200K/Cyan 10%
		108	Off/Cyan 10%
		109	7500K/Blue 100%
		110	6000K/Blue 100%
		111	4400K/Blue 100%
		112	3200K/Blue 100%
		113	Off/Blue 100%
		114	7500K/Blue 50%
		115	6000K/Blue 50%
		116	4400K/Blue 50%
		117	3200K/Blue 50%
		118	Off/Blue 50%
		119	7500K/Blue 25%
		120	6000K/Blue 25%
		121	4400K/Blue 25%
		122	3200K/Blue 25%
		123	Off/Blue 25%
		124	7500K/Blue 10%

CH	Function	DMX	Description
6	Color Macro (continued)	125	6000K/Blue 10%
		126	4400K/Blue 10%
		127	3200K/Blue 10%
		128	Off/Blue 10%
		129	7500K/Indigo 100%
		130	6000K/Indigo 100%
		131	4400K/Indigo 100%
		132	3200K/Indigo 100%
		133	Off/Indigo 100%
		134	7500K/Indigo 50%
		135	6000K/Indigo 50%
		136	4400K/Indigo 50%
		137	3200K/Indigo 50%
		138	Off/Indigo 50%
		139	7500K/Indigo 25%
		140	6000K/Indigo 25%
		141	4400K/Indigo 25%
		142	3200K/Indigo 25%
		143	Off/Indigo 25%
		144	7500K/Indigo 10%
		145	6000K/Indigo 10%
		146	4400K/Indigo 10%
		147	3200K/Indigo 10%
		148	Off/Indigo 10%
		149	7500K/Violet 100%
		150	6000K/Violet 100%
		151	4400K/Violet 100%
		152	3200K/Violet 100%
		153	Off/Violet 100%
		154	7500K/Violet 50%
		155	6000K/Violet 50%
		156	4400K/Violet 50%
		157	3200K/Violet 50%
		158	Off/Violet 60%
		159	7500K/Violet 25%
		160	6000K/Violet 25%
		161	4400K/Violet 25%
		162	3200K/Violet 25%
		163	Off/Violet 25%
		164	7500K/Violet 10%
		165	6000K/Violet 10%
		166	4400K/Violet 10%

CH	Function	DMX	Description
6	Color Macro (continued)	167	3200K/Violet 10%
		168	Off/Violet 10%
		169	7500K/Magenta 100%
		170	6000K/Magenta 100%
		171	4400K/Magenta 100%
		172	3200K/Magenta 100%
		173	Off/Magenta 100%
		174	7500K/Magenta 50%
		175	6000K/Magenta 50%
		176	4400K/Magenta 50%
		177	3200K/Magenta 50%
		178	Off/Magenta 50%
		179	7500K/Magenta 25%
		180	6000K/Magenta 25%
		181	4400K/Magenta 25%
		182	3200K/Magenta 25%
		183	Off/Magenta 25%
		184	7500K/Magenta 10%
		185	6000K/Magenta 10%
		186	4400K/Magenta 10%
		187	3200K/Magenta 10%
		188	Off/Magenta 10%
		189	7500K/7500K 100%
		190	6000K/7500K 100%
		191	4400K/7500K 100%
		192	3200K/7500K 100%
		193	Off/7500K 100%
		194	7500K/7500K 50%
		195	6000K/7500K 50%
		196	4400K/7500K 50%
		197	3200K/7500K 50%
		198	Off/7500K 50%
		199	7500K/7500K 25%
		200	6000K/7500K 25%
		201	4400K/7500K 25%
		202	3200K/7500K 25%
		203	Off/7500K 25%
		204	7500K/7500K 10%
		205	6000K/7500K 10%
		206	4400K/7500K 10%
		207	3200K/7500K 10%
		208	Off/7500K 10%

CH	Function	DMX	Description
6	Color Macro (continued)	209	7500K/3200K 100%
		210	6000K/3200K 100%
		211	4400K/3200K 100%
		212	3200K/3200K 100%
		213	Off/3200K 100%
		214	7500K/3200K 50%
		215	6000K/3200K 50%
		216	4400K/3200K 50%
		217	3200K/3200K 50%
		218	Off/3200K 50%
		219	7500K/3200K 25%
		220	6000K/3200K 25%
		221	4400K/3200K 25%
		222	3200K/3200K 25%
		223	Off/3200K 25%
		224	7500K/3200K 10%
		225	6000K/3200K 10%
		226	4400K/3200K 10%
		227	3200K/3200K 10%
		228	Off/3200K 10%
		229	7500K/Amber 100%
		230	6000K/Amber 100%
		231	4400K/Amber 100%
		232	3200K/Amber 100%
		233	Off/Amber 100%
		234	7500K/Amber 50%
		235	6000K/Amber 50%
		236	4400K/Amber 50%
		237	3200K/Amber 50%
		238	Off/Amber 50%
		239	Off/Amber 100%
		240	7500K/Amber 25%
		241	6000K/Amber 25%
		242	4400K/Amber 25%
		243	3200K/Amber 25%
		244	Off/Amber 25%
		245	7500K/Amber 10%
		246	6000K/Amber 10%
		247	4400K/Amber 10%
		248	3200K/Amber 10%
		249	Off/Amber 10%
		250–255	(Reserved)

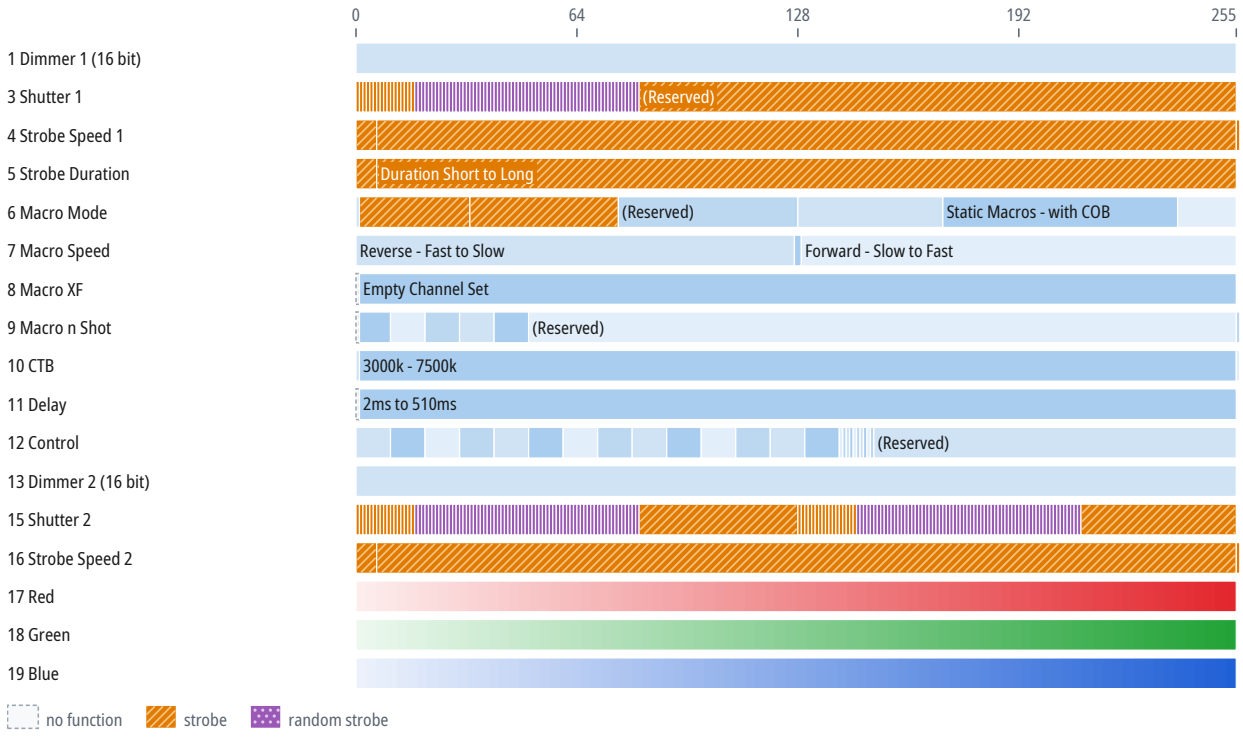
CH	Function	DMX	Description
7	Control	0–9	Safe
		10–19	(Reserved)
		20–29	Display Off (3s)
		30–39	Display On(3s)
		40–49	(Reserved)
		50–59	Reset Fixture
		60–69	Shutdown (9s)
		70–79	Red Shift Off (3s)
		80–89	Red Shift On (3s)
		90–99	LED PWM 2400Hz (3s)
		100–109	LED PWM 16kHz (3s)
		110–119	Fan Control Standard (3s)
		120–129	Fan Control Studio (3s)
		130–139	Fan Control Silent (3s)
		140–255	(Reserved)

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 1 Dimmer 1 above 0; CH 4 Strobe Speed 1 at 255 “Open”; CH 13 Dimmer 2 above 0; CH 16 Strobe Speed 2 at 255 “Open”.

Channel functions at a glance



CH	Function	DMX	Description
1	Dimmer 1	0–255	
2	Dimmer 1 Fine	0–255	Fine adjustment of CH 1
3	Shutter 1	0	Off/Continuous
		1	Synchronous Snap/Snap
		2	Lightning
		3	Tungsten Blinder
		4	Synchronous Snap/Snap
		5	Synchronous Ramp/Snap
		6	Synchronous Snap/Ramp
		7	Synchronous Ramp/Ramp
		8	Synchronous Step/Snap
		9	Synchronous Snap/Step
		10	Synchronous Step/Step
		11	Synchronous Pulse/Step
		12	Synchronous Step/Pulse
		13	Synchronous Pulse/Pulse
		14	Synchronous Sine/Step
		15	Synchronous Step/Sine
		16	Synchronous Sine/Sine
		17	Synchronous Random Snap/Snap
		18	Synchronous Random Ramp/Snap
		19	Synchronous Random Snap/Ramp
		20	Synchronous Random Ramp/Ramp
		21	Synchronous Random Step/Snap
		22	Synchronous Random Snap/Step
		23	Synchronous Random Step/Step
		24	Synchronous Random Pulse/Step
		25	Synchronous Random Step/Pulse
		26	Synchronous Random Pulse/Pulse
		27	Synchronous Random Sine/Step
		28	Synchronous Random Step/Sine
		29	Synchronous Random Sine/Sine
		30	Random Snap/Snap
		31	Random Ramp/Snap
		32	Random Snap/Ramp
		33	Random Ramp/Ramp
		34	Random Step/Snap
		35	Random Snap/Step
		36	Random Step/Step
		37	Random Pulse/Step

CH	Function	DMX	Description
3	Shutter 1 (continued)	38	Random Step/Pulse
		39	Random Pulse/Pulse
		40	Random Sine/Step
		41	Random Step/Sine
		42	Random Sine/Sine
		43	Random Pixel Snap/Snap
		44	Random Pixel Ramp/Snap
		45	Random Pixel Snap/Ramp
		46	Random Pixel Ramp/Ramp
		47	Random Pixel Step/Snap
		48	Random Pixel Snap/Step
		49	Random Pixel Step/Step
		50	Random Pixel Pulse/Step
		51	Random Pixel Step/Pulse
		52	Random Pixel Pulse/Pulse
		53	Random Pixel Sine/Step
		54	Random Pixel Step/Sine
		55	Random Pixel Sine/Sine
		56	Random Pixel/Color Snap/Snap
		57	Random Pixel/Color Ramp/Snap
		58	Random Pixel/Color Snap/Ramp
		59	Random Pixel/Color Ramp/Ramp
		60	Random Pixel/Color Step/Snap
		61	Random Pixel/Color Snap/Step
		62	Random Pixel/Color Step/Step
		63	Random Pixel/Color Pulse/Step
		64	Random Pixel/Color Step/Pulse
		65	Random Pixel/Color Pulse/Pulse
		66	Random Pixel/Color Sine/Step
		67	Random Pixel/Color Step/Sine
		68	Random Pixel/Color Sine/Sine
		69	Random Color Snap/Snap
		70	Random Color Ramp/Snap
		71	Random Color Snap/Ramp
		72	Random Color Ramp/Ramp
		73	Random Color Step/Snap
		74	Random Color Snap/Step
		75	Random Color Step/Step
		76	Random Color Pulse/Step
		77	Random Color Step/Pulse
		78	Random Color Pulse/Pulse

CH	Function	DMX	Description
3	Shutter 1 (continued)	79	Random Color Sine/Step
		80	Random Color Step/Sine
		81	Random Color Sine/Sine
		82–255	(Reserved)
4	Strobe Speed 1	0–5	Off
		6–254	Strobe Rate (0.8–31.2 Hz)
		255	Open
5	Strobe Duration		Same as CH 5 in the mode “Reduced” (p. 11)
6	Macro Mode	0	Macro Off
		1–32	Strobe Macros - no COB
		33–75	Strobe Macros - with COB
		76–127	(Reserved)
		128–169	Static Macros - no COB
		170–237	Static Macros - with COB
		238–255	(Reserved)
7	Macro Speed	0–126	Reverse - Fast to Slow
		127–128	Stop
		129–255	Forward - Slow to Fast
8	Macro XF	0	Off
		1–255	Empty Channel Set
9	Macro n Shot	0	Off
		1–9	1 Shot
		10–19	2 Shot
		20–29	3 Shot
		30–39	4 Shot
		40–49	5 Shot
		50–254	(Reserved)
		255	Continuous Run
10	CTB	0	3000k
		1–254	3000k - 7500k
		255	7500k
11	Delay	0	Off
		1–255	2ms to 510ms (0.2–0.51 s)
12	Control	0–9	Safe
		10–19	(Reserved)
		20–29	Display Off (3s)
		30–39	Display On(3s)
		40–49	(Reserved)
		50–59	Reset Fixture
		60–69	Shutdown (9s)
		70–79	Red Shift Off (3s)

CH	Function	DMX	Description
12	Control (continued)	80–89	Red Shift On (3s)
		90–99	LED PWM 2400Hz (3s)
		100–109	LED PWM 16kHz (3s)
		110–119	Fan Control Standard (3s)
		120–129	Fan Control Studio (3s)
		130–139	Fan Control Silent (3s)
		140–147	Pixel 1...8 ID
		148	Pixel 1 Reclock Store
		149	Pixel 1 Reclock Restore Default
		150–255	(Reserved)
13	Dimmer 2	0–255	
14	Dimmer 2 Fine	0–255	Fine adjustment of CH 13
15	Shutter 2	0	Background Tracking: Off/Continuous
		1	Background Tracking: Synchronous Snap/Snap
		2	Background Tracking: Lightning
		3	Background Tracking: Tungsten Blinder
		4	Background Tracking: Synchronous Snap/Snap
		5	Background Tracking: Synchronous Ramp/Snap
		6	Background Tracking: Synchronous Snap/Ramp
		7	Background Tracking: Synchronous Ramp/Ramp
		8	Background Tracking: Synchronous Step/Snap
		9	Background Tracking: Synchronous Snap/Step
		10	Background Tracking: Synchronous Step/Step
		11	Background Tracking: Synchronous Pulse/Step
		12	Background Tracking: Synchronous Step/Pulse
		13	Background Tracking: Synchronous Pulse/Pulse
		14	Background Tracking: Synchronous Sine/Step
		15	Background Tracking: Synchronous Step/Sine
		16	Background Tracking: Synchronous Sine/Sine
		17	Background Tracking: Synchronous Random Snap/Snap
		18	Background Tracking: Synchronous Random Ramp/Snap
		19	Background Tracking: Synchronous Random Snap/Ramp
		20	Background Tracking: Synchronous Random Ramp/Ramp
		21	Background Tracking: Synchronous Random Step/Snap
		22	Background Tracking: Synchronous Random Snap/Step
		23	Background Tracking: Synchronous Random Step/Step
		24	Background Tracking: Synchronous Random Pulse/Step
		25	Background Tracking: Synchronous Random Step/Pulse
		26	Background Tracking: Synchronous Random Pulse/Pulse
		27	Background Tracking: Synchronous Random Sine/Step
		28	Background Tracking: Synchronous Random Step/Sine

CH	Function	DMX	Description
15	Shutter 2 (continued)	29	Background Tracking: Synchronous Random Sine/Sine
		30	Background Tracking: Random Snap/Snap
		31	Background Tracking: Random Ramp/Snap
		32	Background Tracking: Random Snap/Ramp
		33	Background Tracking: Random Ramp/Ramp
		34	Background Tracking: Random Step/Snap
		35	Background Tracking: Random Snap/Step
		36	Background Tracking: Random Step/Step
		37	Background Tracking: Random Pulse/Step
		38	Background Tracking: Random Step/Pulse
		39	Background Tracking: Random Pulse/Pulse
		40	Background Tracking: Random Sine/Step
		41	Background Tracking: Random Step/Sine
		42	Background Tracking: Random Sine/Sine
		43	Background Tracking: Random Pixel Snap/Snap
		44	Background Tracking: Random Pixel Ramp/Snap
		45	Background Tracking: Random Pixel Snap/Ramp
		46	Background Tracking: Random Pixel Ramp/Ramp
		47	Background Tracking: Random Pixel Step/Snap
		48	Background Tracking: Random Pixel Snap/Step
		49	Background Tracking: Random Pixel Step/Step
		50	Background Tracking: Random Pixel Pulse/Step
		51	Background Tracking: Random Pixel Step/Pulse
		52	Background Tracking: Random Pixel Pulse/Pulse
		53	Background Tracking: Random Pixel Sine/Step
		54	Background Tracking: Random Pixel Step/Sine
		55	Background Tracking: Random Pixel Sine/Sine
		56	Background Tracking: Random Pixel/Color Snap/Snap
		57	Background Tracking: Random Pixel/Color Ramp/Snap
		58	Background Tracking: Random Pixel/Color Snap/Ramp
		59	Background Tracking: Random Pixel/Color Ramp/Ramp
		60	Background Tracking: Random Pixel/Color Step/Snap
		61	Background Tracking: Random Pixel/Color Snap/Step
		62	Background Tracking: Random Pixel/Color Step/Step
		63	Background Tracking: Random Pixel/Color Pulse/Step
		64	Background Tracking: Random Pixel/Color Step/Pulse
		65	Background Tracking: Random Pixel/Color Pulse/Pulse
		66	Background Tracking: Random Pixel/Color Sine/Step
		67	Background Tracking: Random Pixel/Color Step/Sine
		68	Background Tracking: Random Pixel/Color Sine/Sine
		69	Background Tracking: Random Color Snap/Snap
		70	Background Tracking: Random Color Ramp/Snap

CH	Function	DMX	Description
15	Shutter 2 (continued)	71	Background Tracking: Random Color Snap/Ramp
		72	Background Tracking: Random Color Ramp/Ramp
		73	Background Tracking: Random Color Step/Snap
		74	Background Tracking: Random Color Snap/Step
		75	Background Tracking: Random Color Step/Step
		76	Background Tracking: Random Color Pulse/Step
		77	Background Tracking: Random Color Step/Pulse
		78	Background Tracking: Random Color Pulse/Pulse
		79	Background Tracking: Random Color Sine/Step
		80	Background Tracking: Random Color Step/Sine
		81	Background Tracking: Random Color Sine/Sine
		82–127	Background Tracking: (Reserved)
		128	Background Independent: Off/Continuous
		129	Background Independent: Synchronous Snap/Snap
		130	Background Independent: Lightning
		131	Background Independent: Tungsten Blinder
		132	Background Independent: Synchronous Snap/Snap
		133	Background Independent: Synchronous Ramp/Snap
		134	Background Independent: Synchronous Snap/Ramp
		135	Background Independent: Synchronous Ramp/Ramp
		136	Background Independent: Synchronous Step/Snap
		137	Background Independent: Synchronous Snap/Step
		138	Background Independent: Synchronous Step/Step
		139	Background Independent: Synchronous Pulse/Step
		140	Background Independent: Synchronous Step/Pulse
		141	Background Independent: Synchronous Pulse/Pulse
		142	Background Independent: Synchronous Sine/Step
		143	Background Independent: Synchronous Step/Sine
		144	Background Independent: Synchronous Sine/Sine
		145	Background Independent: Synchronous Random Snap/Snap
		146	Background Independent: Synchronous Random Ramp/Snap
		147	Background Independent: Synchronous Random Snap/Ramp
		148	Background Independent: Synchronous Random Ramp/Ramp
		149	Background Independent: Synchronous Random Step/Snap
		150	Background Independent: Synchronous Random Snap/Step
		151	Background Independent: Synchronous Random Step/Step
		152	Background Independent: Synchronous Random Pulse/Step
		153	Background Independent: Synchronous Random Step/Pulse
		154	Background Independent: Synchronous Random Pulse/Pulse
		155	Background Independent: Synchronous Random Sine/Step
		156	Background Independent: Synchronous Random Step/Sine
		157	Background Independent: Synchronous Random Sine/Sine

CH	Function	DMX	Description
15	Shutter 2 (continued)	158	Background Independent: Random Snap/Snap
		159	Background Independent: Random Ramp/Snap
		160	Background Independent: Random Snap/Ramp
		161	Background Independent: Random Ramp/Ramp
		162	Background Independent: Random Step/Snap
		163	Background Independent: Random Snap/Step
		164	Background Independent: Random Step/Step
		165	Background Independent: Random Pulse/Step
		166	Background Independent: Random Step/Pulse
		167	Background Independent: Random Pulse/Pulse
		168	Background Independent: Random Sine/Step
		169	Background Independent: Random Step/Sine
		170	Background Independent: Random Sine/Sine
		171	Background Independent: Random Pixel Snap/Snap
		172	Background Independent: Random Pixel Ramp/Snap
		173	Background Independent: Random Pixel Snap/Ramp
		174	Background Independent: Random Pixel Ramp/Ramp
		175	Background Independent: Random Pixel Step/Snap
		176	Background Independent: Random Pixel Snap/Step
		177	Background Independent: Random Pixel Step/Step
		178	Background Independent: Random Pixel Pulse/Step
		179	Background Independent: Random Pixel Step/Pulse
		180	Background Independent: Random Pixel Pulse/Pulse
		181	Background Independent: Random Pixel Sine/Step
		182	Background Independent: Random Pixel Step/Sine
		183	Background Independent: Random Pixel Sine/Sine
		184	Background Independent: Random Pixel/Color Snap/Snap
		185	Background Independent: Random Pixel/Color Ramp/Snap
		186	Background Independent: Random Pixel/Color Snap/Ramp
		187	Background Independent: Random Pixel/Color Ramp/Ramp
		188	Background Independent: Random Pixel/Color Step/Snap
		189	Background Independent: Random Pixel/Color Snap/Step
		190	Background Independent: Random Pixel/Color Step/Step
		191	Background Independent: Random Pixel/Color Pulse/Step
		192	Background Independent: Random Pixel/Color Step/Pulse
		193	Background Independent: Random Pixel/Color Pulse/Pulse
		194	Background Independent: Random Pixel/Color Sine/Step
		195	Background Independent: Random Pixel/Color Step/Sine
		196	Background Independent: Random Pixel/Color Sine/Sine
		197	Background Independent: Random Color Snap/Snap
		198	Background Independent: Random Color Ramp/Snap
		199	Background Independent: Random Color Snap/Ramp

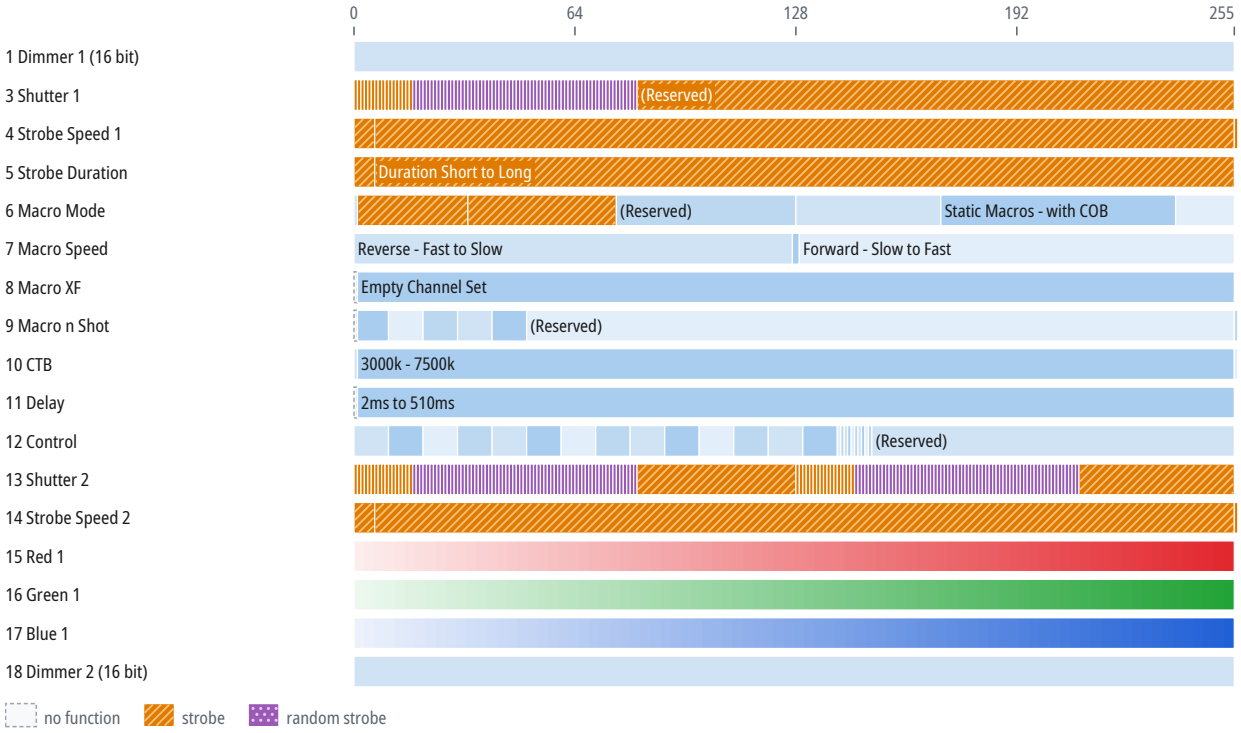
CH	Function	DMX	Description
15	Shutter 2 (continued)	200	Background Independent: Random Color Ramp/Ramp
		201	Background Independent: Random Color Step/Snap
		202	Background Independent: Random Color Snap/Step
		203	Background Independent: Random Color Step/Step
		204	Background Independent: Random Color Pulse/Step
		205	Background Independent: Random Color Step/Pulse
		206	Background Independent: Random Color Pulse/Pulse
		207	Background Independent: Random Color Sine/Step
		208	Background Independent: Random Color Step/Sine
		209	Background Independent: Random Color Sine/Sine
		210–255	Background Independent: (Reserved)
16	Strobe Speed 2	0–5	Off
		6–254	Strobe Rate (0.8–31.2 Hz)
		255	Open
17	Red	0–255	
18	Green	0–255	
19	Blue	0–255	

Mode Expanded

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 1 Dimmer 1 above 0; CH 4 Strobe Speed 1 at 255 “Open”; CH 14 Strobe Speed 2 at 255 “Open”; CH 18 Dimmer above 0 (the same in each of the 8 cells).

Channel functions at a glance



CH	Function	DMX	Description
1	Dimmer 1	0–255	
2	Dimmer 1 Fine	0–255	Fine adjustment of CH 1
3	Shutter 1		Same as CH 3 in the mode “Standard” (p. 19)
4	Strobe Speed 1		Same as CH 4 in the mode “Standard” (p. 21)
5	Strobe Duration		Same as CH 5 in the mode “Reduced” (p. 11)
6	Macro Mode		Same as CH 6 in the mode “Standard” (p. 21)
7	Macro Speed		Same as CH 7 in the mode “Standard” (p. 21)
8	Macro XF		Same as CH 8 in the mode “Standard” (p. 21)
9	Macro n Shot		Same as CH 9 in the mode “Standard” (p. 21)
10	CTB		Same as CH 10 in the mode “Standard” (p. 21)
11	Delay		Same as CH 11 in the mode “Standard” (p. 21)
12	Control		Same as CH 12 in the mode “Standard” (p. 21)
13	Shutter 2		Same as CH 15 in the mode “Standard” (p. 22)
14	Strobe Speed 2		Same as CH 16 in the mode “Standard” (p. 26)
15	Red 1	0–255	
16	Green 1	0–255	

CH	Function	DMX	Description
17	Blue 1	0–255	
18	Dimmer 2	0–255	
19	Dimmer 2 Fine	0–255	Fine adjustment of CH 18

CH 15–54: 8 cells of 5 channels each. Every cell works as cell 1 in the table above (CH 15–19); the table below gives each cell's channel numbers.

Cell	Red	Green	Blue	Dimmer	Dimmer Fine	Cell	Red	Green	Blue	Dimmer	Dimmer Fine
1	15	16	17	18	19	2	20	21	22	23	24
3	25	26	27	28	29	4	30	31	32	33	34
5	35	36	37	38	39	6	40	41	42	43	44
7	45	46	47	48	49	8	50	51	52	53	54

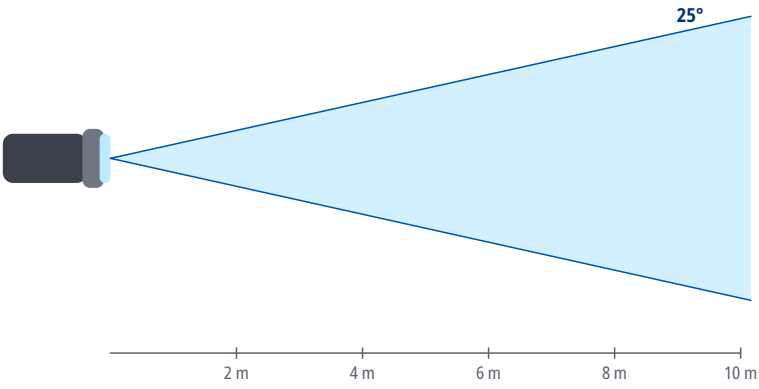
10 Technical specifications

Parameter	Value
RDM	yes (manufacturer ID 0x4C52, device model ID 0x2F18)
Weight	7 kg
Operating temperature	0 to 40 °C

Speeds and ranges

Parameter	Value
Color temperature range	3000–7500 K
Strobe frequency	0–32 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.

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.