DMX REFERENCE

GLW190Z

Terbly GLW190Z

Terbly



Manufacturer	Terbly
GDTF file	Terbly_GLW190Z_69440.gdtf
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1 About this manual

This document describes the Terbly GLW190Z by Terbly. It was compiled from the GDTF file Terbly_GLW190Z_69440.gdtf from the GDTF-Share library.

File revision: “Updated the default value of strobe”.

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 Terbly; 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
Standard	35	14	1, 36, 71, 106, ...
Basic	17	30	1, 18, 35, 52, ...
Extended	93	5	1, 94, 187, 280, ...
Pixel	76	6	1, 77, 153, 229, ...

No light? Check these channels

- Standard: CH 6 Shutter at 32–63 “Open” or 96–127 or 160–191 or 224–255; CH 7 Dimmer above 0
- Basic: CH 4 Shutter at 32–63 “Open” or 96–127 or 160–191 or 224–255; CH 5 Dimmer above 0
- Extended: CH 6 Shutter at 32–63 “Open” or 96–127 or 160–191 or 224–255; CH 7 Dimmer above 0



Read the manual before use



Do not stare into the light



Indoor use only

3 Safety instructions



Read the manual before use



Do not stare into the light



Indoor use only

⚠ WARNING

- This device is intended for professional use. Installation, connection, setup and maintenance must be carried out only by suitably qualified persons who have read this manual.
- Use the device only for its intended purpose and as described in this manual.
- Do not open the housing and do not modify or tamper with the device. Refer all repairs to an authorized service center.
- Do not use the device if its housing, power or data cable, or a connector is damaged, if the device has been dropped, or if liquid or a foreign object has entered it. In such a case, have it checked by a service center.
- Disconnect the device from the power supply before cleaning, maintenance or any work on the connections.
- After moving the device from a cold to a warm environment, let it reach room temperature before switching it on to prevent condensation inside.
- The device is not a toy; keep it out of the reach of children.

⚠ WARNING

- This device is designed for indoor use only. Protect it from rain, splashing water, moisture and dust, and do not place containers with liquids on it.
- Do not operate the device in high humidity, near water, or where condensation can form on it.

⚠ CAUTION

- This device emits intense light. Do not look directly into the light source or the beam at close range; doing so may damage your eyes.
- Do not aim the beam at the eyes of people or animals at close range, and do not view the light source through optical instruments (binoculars, camera lenses).
- Do not aim the beam at flammable or heat-sensitive materials at close range.

⚠ CAUTION

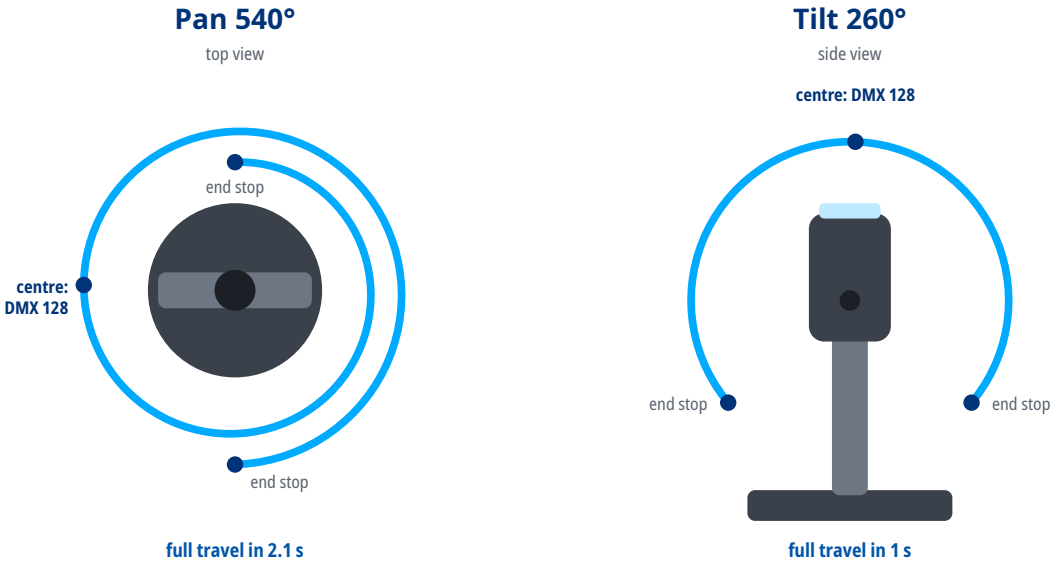
- Strobe and fast flashing light effects can trigger epileptic seizures in susceptible people (photosensitive epilepsy) and can cause nausea or disorientation.
- Inform the audience and performers in advance that strobe effects will be used, for example with a notice at the entrance, and do not use them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

⚠ WARNING

- The moving parts of the device (for example the head or arms) can move quickly and unexpectedly at any time – after power-on, during a reset, or on a command from the controller.
- Keep yourself and any objects out of the range of movement. While the device is switched on, do not touch the moving parts, move them by hand, or obstruct their movement; this can cause injury (pinching) and damage the drive.
- Do not carry the device by its moving parts. If the device has a transport lock, engage it before transport and release it before switching on.

4 Product description

Range of movement



Full-travel times as stated in the GDTF file.

5 Installation

⚠ WARNING

- Rigging must be carried out only by qualified persons in accordance with applicable regulations, in particular those for work at height.
- The supporting structure and fixings must safely carry the weight of all suspended devices; verify their load capacity in advance.
- Use suitable mounting hardware (for example truss clamps) and tighten all screw connections properly.
- Always secure the suspended device against falling with a safety cable of adequate load capacity, routed through a fixed point of the device and around the supporting structure.
- During installation and removal, keep people out of the area below the work position.
- Regularly inspect the fixings and the safety cable for damage, corrosion and loosening.

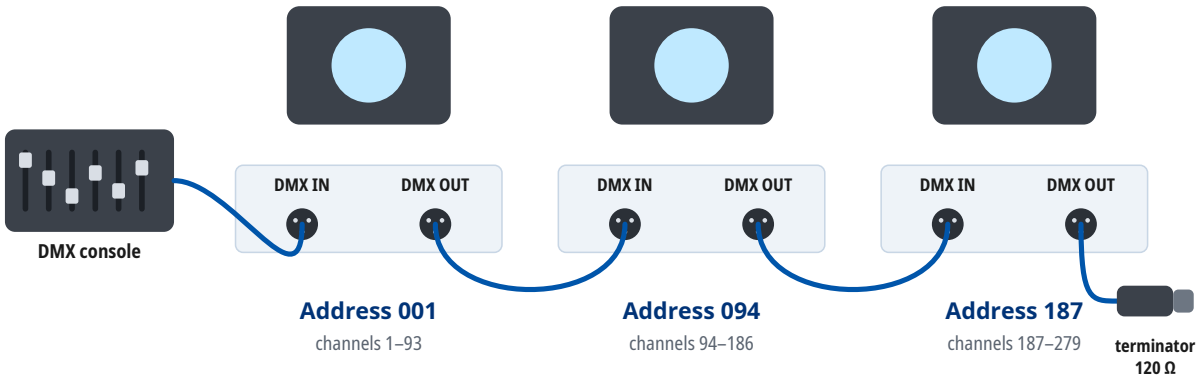
6 Connections

- Use shielded cable designed for DMX512 with an impedance of 110 Ω. Ordinary microphone cable is

not suitable for DMX, especially over longer distances.

- Connect the devices in a daisy chain: connect the DMX OUT of one device to the DMX IN of the next. Do not split the line with Y-cables or wire it in a star; the line may be split only with a DMX splitter.
- Connect the shield to pin 1 only. Do not connect the shield (ground) to the metal shell of the connector; this can cause short circuits or erratic behavior.
- XLR pin assignment: pin 1 – shield (ground), pin 2 – Data- (Data Complement), pin 3 – Data+ (Data True). On 5-pin connectors, pins 4 and 5 are not connected; a 5-pin connector can be connected to a 3-pin one with a cable adapter.
- Terminate the end of the line (for impedance matching): plug an XLR connector with a 120 Ω, ¼ W resistor between pins 2 and 3 into the DMX OUT of the last device. This reduces the risk of erratic behavior.
- Connect no more than 32 devices to one DMX line. For more devices or longer runs, use a DMX splitter or booster.

DMX line



Mode Extended: every unit occupies 93 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”: 93.
- 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, 94, 187, 280.
- 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

	Standard 35 channels	Basic 17 channels	Extended 93 channels	Pixel 76 channels
Pan / Tilt	1, 3	1, 2	1, 3	
Pan / Tilt resolution	16 bit	8 bit	16 bit	
Dimmer	7	5	7	✓
Dimmer resolution	8 bit	8 bit	16 bit	
Shutter / strobe	6	4	6	
Color mixing	24–35 *	8–11 *	18–93 *	1–76
Color wheel	18	12	12	
Zoom	9	7	10	
Effects / macros	19–21, 23	13–15, 17	13–15, 17	
Pixel control	✓			

* The function works only when another channel switches it on; see the DMX table.

Color wheel

1. No function — DMX 0–4
2. 2700K — DMX 5–9
3. 3200K — DMX 10–14
4. 4300K — DMX 15–19
5. 5600K — DMX 20–24
6. 6500K — DMX 25–29
7. 8000K — DMX 30–34
8. Red — DMX 35–39
9. Green — DMX 40–44
10. Blue — DMX 45–49
11. Natural White — DMX 50–54
12. Full White — DMX 55–59
13. Yellow — DMX 60–64
14. Magenta — DMX 65–69
15. Cyan — DMX 70–74
16. Salmon — DMX 75–79
17. Turquoise — DMX 80–84
18. Light Green — DMX 85–89
19. Steel Blue — DMX 90–94
20. Orange — DMX 95–99
21. Straw — DMX 100–104
22. Pale Lavander — DMX 105–109
23. Pink
24. Red/White — DMX 115–119

25 Green/Red
DMX 120–124

26 Blue/Red
DMX 125–129

27 White/Red
DMX 130–134

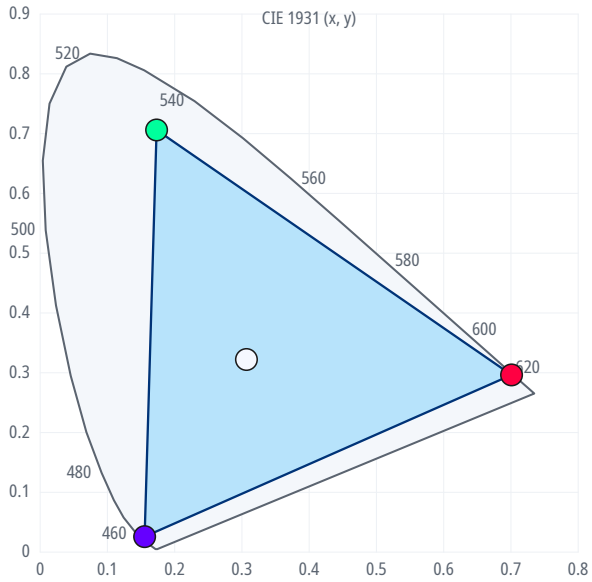
28 White/Pink
DMX 135–139

29 Pink
DMX 110–114

30 Small Red/White
DMX 145–149

31 Reserved

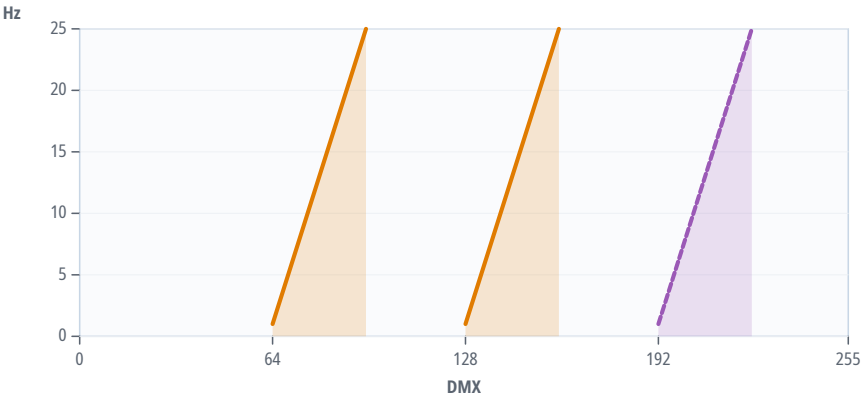
LED colors and the colors they mix



LED	x	y	nm
Red	0.701	0.296	627
Green	0.173	0.706	526
Blue	0.155	0.026	454
White	0.307	0.322	

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

Strobe rate



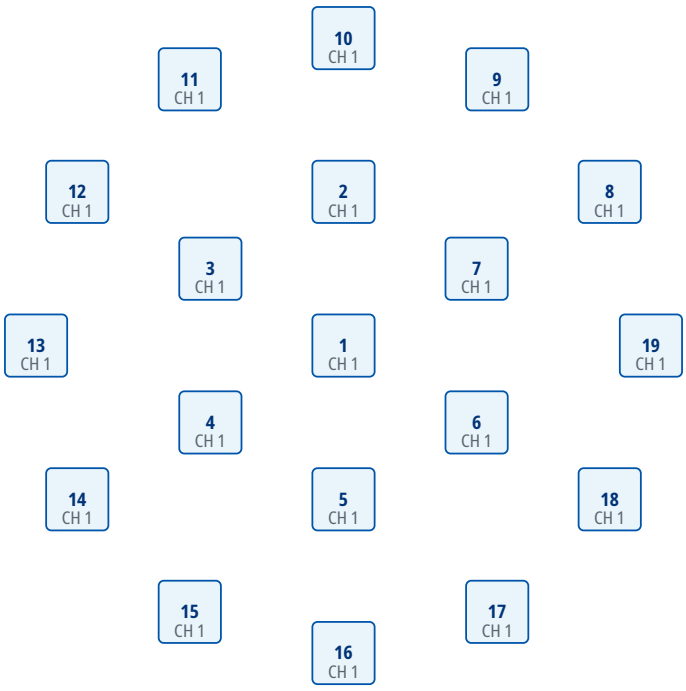
CH 6 · Standard

64–95: 1–25 Hz
Strobe

128–159: 1–25 Hz
Pulse

192–223: 1–25 Hz
Random

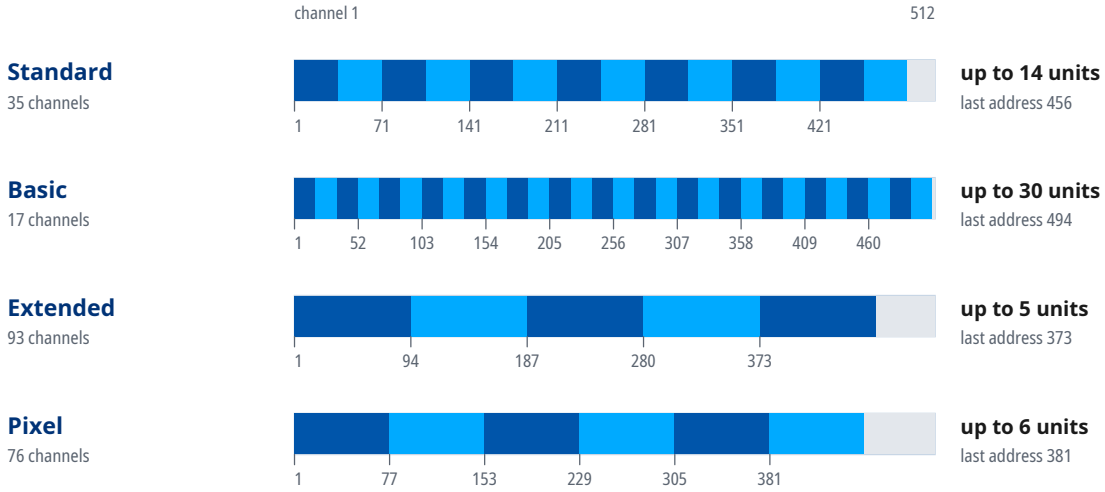
Cells (pixels)



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

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 · 1	11	U3 · 1	16	U4 · 1
2	94	7	U2 · 94	12	U3 · 94	17	U4 · 94
3	187	8	U2 · 187	13	U3 · 187	18	U4 · 187
4	280	9	U2 · 280	14	U3 · 280	19	U4 · 280
5	373	10	U2 · 373	15	U3 · 373	20	U4 · 373

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 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 6 Shutter at 32–63 “Open” or 96–127 or 160–191 or 224–255; CH 7 Dimmer above 0. The GDTF file gives these values for a console's Highlight function: CH 6 Shutter 63, CH 7 Dimmer 255, CH 24 Red 1 255, CH 25 Green 1 255, CH 26 Blue 1 255, CH 27 White 1 0, CH 28 Red 2 255, CH 29 Green 2 255, CH 30 Blue 2 255, CH 31 White 2 0, CH 32 Red 3 255, CH 33 Green 3 255, CH 34 Blue 3 255, CH 35 White 3 0.

CH	Function	DMX	Description
1	Pan	0–127	Min … center
		128–255	Center … max
		255	Max
2	Pan Fine	0–255	Fine adjustment of CH 1
3	Tilt	0–127	Min … center
		128–255	Center … max
		255	Max
4	Tilt Fine	0–255	Fine adjustment of CH 3
5	Speed Pan/Tilt	0	Max

CH	Function	DMX	Description
5	Speed Pan/Tilt (continued)	1–224	Max ... min
		225	Min
		226–235	BO by Movement
		236–245	No function
		246–255	Position MSpeed 1
6	Shutter	0–31	Shutter: Closed
		32–63	Shutter: Open
		64	Min Strobe
		65–94	Min Strobe ... max Strobe
		95	Max Strobe
		96–127	Open 2
		128	Min Pulse
		129–158	Min Pulse ... max Pulse
		159	Max Pulse
		160–191	Open 3
		192	Min Rnd
		193–222	Min Rnd ... maxRnd
		223	maxRnd
		224–255	Open 4
7	Dimmer	0	Closed
		1–254	Closed ... Open
		255	Open
8	Dimmer Curve	0–20	Standard
		21–40	Stage
		41–60	TV
		61–80	Architectural
		81–100	Theatre
		101–255	Default
9	Zoom	0	Narrow
		1–127	Narrow ... normal
		128	Normal
		129–254	Normal ... wide
		255	Wide
18	Colors	0–4	No function
		5–9	2700K
		10–14	3200K
		15–19	4300K
		20–24	5600K
		25–29	6500K
		30–34	8000K
		35–39	Red
		40–44	Green

CH	Function	DMX	Description
18	Colors (continued)	45–49	Blue
		50–54	Natural White
		55–59	Full White
		60–64	Yellow
		65–69	Magenta
		70–74	Cyan
		75–79	Salmon
		80–84	Turquoise
		85–89	Light Green
		90–94	Steel Blue
		95–99	Orange
		100–104	Straw
		105–109	Pale Lavander
		110–114	Pink
		115–119	Red/White
		120–124	Green/Red
		125–129	Blue/Red
		130–134	White/Red
		135–139	White/Pink
		140–144	White/Turquoise
		145–149	Small Red/White
		150–255	Color Effects 1
19	Effects	0–15	Safe
		16–25	Chase 1
		26–35	Chase 2
		36–45	Chase 3
		46–55	Chase 4
		56–65	Chase 5
		66–75	Chase 6
		76–85	Chase 7
		86–95	Chase 8
		96–105	Chase 9
		106–115	Chase 10
		116–125	CHase 11
		126–135	Chase 12
		136–145	CHase 13
		146–155	Chase 14
		156–165	Chase 15
		166–175	Chase 16
		176–185	Chase 17
		186–195	Chase 18
		196–205	Chase 19

CH	Function	DMX	Description
19	Effects (continued)	206–215	Chase 20
		216–225	Chase 21
		226–235	Chase 22
		236–245	Chase 23
		246–255	Chase 24
20	Effects Speed	0	>>>
		1–124	>>
		125	>
		126–130	Stop (0.49–0.51 Hz)
		131	<
		132–254	<<
		255	<<<
21	Effects Fade	0	Min
		1–254	Min ... max
		255	Max
22	Color Calibration Mode	0–189	No function
		190–254	Edit a new white balance
		255	Store a new white balance
23	Control	0–79	Normal
		80–84	Reset all
		85–87	Reset P/T
		88–90	No function
		91–93	Srore white balance enabled
		94–96	No function
		97–99	Reset others
		100–119	Program 1
		120–139	Program 2
		140–159	Program 3
		160–179	Program 4
		180–199	Program 5
		200–219	Program 6
		220–239	Program 7
		240–255	Music Control
24	Red 1		When CH 18 is 0:
		0	Min
		1–254	Min ... Max
		255	Max
25	Green 1		When CH 18 is 0:
		0	Min
		1–254	Min ... Max
		255	Max
26	Blue 1		When CH 18 is 0:

CH	Function	DMX	Description
26	Blue 1 (continued)	0	Min
		1–254	Min … Max
		255	Max
27	White 1		When CH 18 is 0:
		0	Min
		1–254	Min … Max
		255	Max
28	Red 2		When CH 18 is 0:
		0	Min
		1–254	Min … Max
		255	Max
29	Green 2		When CH 18 is 0:
		0	Min
		1–254	Min … Max
		255	Max
30	Blue 2		When CH 18 is 0:
		0	Min
		1–254	Min … Max
		255	Max
31	White 2		When CH 18 is 0:
		0	Min
		1–254	Min … Max
		255	Max
32	Red 3		When CH 18 is 0:
		0	Min
		1–254	Min … Max
		255	Max
33	Green 3		When CH 18 is 0:
		0	Min
		1–254	Min … Max
		255	Max
34	Blue 3		When CH 18 is 0:
		0	Min
		1–254	Min … Max
		255	Max
35	White 3		When CH 18 is 0:
		0	Min
		1–254	Min … Max
		255	Max

Mode Basic

If the device receives DMX in this mode but gives no light, check these channels: CH 4 Shutter at 32–63 “Open” or 96–127 or 160–191 or 224–255; CH 5 Dimmer above 0. The GDTF file gives these values for a console's Highlight function: CH 4 Shutter 63, CH 5 Dimmer 255, CH 8 Red 255, CH 9 Green 255, CH 10 Blue 0.

CH	Function	DMX	Description
1	Pan	0	Min
		1–127	Min ... center
		128	Center
		129–254	Center ... max
		255	Max
2	Tilt	0	Min
		1–127	Min ... center
		128	Center
		129–254	Center ... max
		255	Max
3	Speed Pan/Tilt		Same as CH 5 in the mode “Standard” (p. 10)
4	Shutter		Same as CH 6 in the mode “Standard” (p. 11)
5	Dimmer		Same as CH 7 in the mode “Standard” (p. 11)
6	Dimmer Curve		Same as CH 8 in the mode “Standard” (p. 11)
7	Zoom		Same as CH 9 in the mode “Standard” (p. 11)
8	Red		When CH 12 is 0:
		0	Min
		1–254	Min ... Max
		255	Max
9	Green		When CH 12 is 0:
		0	Min
		1–254	Min ... Max
		255	Max
10	Blue		When CH 12 is 0:
		0	Min
		1–254	Min ... Max
		255	Max
11	White		When CH 12 is 0:
		0	Min
		1–254	Min ... Max
		255	Max
12	Colors		Same as CH 18 in the mode “Standard” (p. 11)
13	Effects		Same as CH 19 in the mode “Standard” (p. 12)
14	Effects Speed		Same as CH 20 in the mode “Standard” (p. 13)
15	Effects Fade		Same as CH 21 in the mode “Standard” (p. 13)
16	Color Calibration Mode		Same as CH 22 in the mode “Standard” (p. 13)
17	Control		Same as CH 23 in the mode “Standard” (p. 13)

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 6 Shutter at 32–63 “Open” or 96–127 or 160–191 or 224–255; CH 7 Dimmer above 0. The GDTF file gives these values for a console's Highlight function: CH 6 Shutter 63, CH 7 Dimmer 255, CH 18 Red 255 (the same in each of the 19 cells), CH 19 Green 255 (the same in each of the 19 cells), CH 20 Blue 255 (the same in each of the 19 cells), CH 21 White 0 (the same in each of the 19 cells).

CH	Function	DMX	Description
1	Pan		Same as CH 1 in the mode “Standard” (p. 10)
2	Pan Fine	0–255	Fine adjustment of CH 1
3	Tilt		Same as CH 3 in the mode “Standard” (p. 10)
4	Tilt Fine	0–255	Fine adjustment of CH 3
5	Speed Pan/Tilt		Same as CH 5 in the mode “Standard” (p. 10)
6	Shutter		Same as CH 6 in the mode “Standard” (p. 11)
7	Dimmer	0–255	Closed ... Open
		255	Open
8	Dimmer Fine	0–255	Fine adjustment of CH 7
9	Dimmer Curve		Same as CH 8 in the mode “Standard” (p. 11)
10	Zoom	0–128	Narrow ... normal
		128–255	Normal ... wide
		255	Wide
11	Zoom Fine	0–255	Fine adjustment of CH 10
12	Colors		Same as CH 18 in the mode “Standard” (p. 11)
13	Effects		Same as CH 19 in the mode “Standard” (p. 12)
14	Effects Speed		Same as CH 20 in the mode “Standard” (p. 13)
15	Effects Fade		Same as CH 21 in the mode “Standard” (p. 13)
16	Color Calibration Mode		Same as CH 22 in the mode “Standard” (p. 13)
17	Control		Same as CH 23 in the mode “Standard” (p. 13)
18	Red 1		When CH 12 is 0:
		0	Min
		1–254	Min ... Max
		255	Max
19	Green 1		When CH 12 is 0:
		0	Min
		1–254	Min ... Max
		255	Max
20	Blue 1		When CH 12 is 0:
		0	Min
		1–254	Min ... Max
		255	Max

CH	Function	DMX	Description
21	White 1		When CH 12 is 0:
		0	Min
		1–254	Min … Max
		255	Max

CH 18–93: 19 cells of 4 channels each. Every cell works as cell 1 in the table above (CH 18–21); the table below gives each cell's channel numbers.

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

Mode Pixel

The GDTF file gives these values for a console's Highlight function: CH 1 Red 255 (the same in each of the 19 cells), CH 2 Green 255 (the same in each of the 19 cells), CH 3 Blue 255 (the same in each of the 19 cells), CH 4 White 0 (the same in each of the 19 cells).

CH	Function	DMX	Description
1	Red 1	0	Min
		1–254	Min … Max
		255	Max
2	Green 1	0	Min
		1–254	Min … Max
		255	Max
3	Blue 1	0	Min
		1–254	Min … Max
		255	Max
4	White 1	0	Min
		1–254	Min … Max
		255	Max

CH 1–76: 19 cells of 4 channels each. Every cell works as cell 1 in the table above (CH 1–4); the table below gives each cell's channel numbers.

Cell	Red	Green	Blue	White	Cell	Red	Green	Blue	White
1	1	2	3	4	2	5	6	7	8
3	9	10	11	12	4	13	14	15	16
5	17	18	19	20	6	21	22	23	24
7	25	26	27	28	8	29	30	31	32
9	33	34	35	36	10	37	38	39	40
11	41	42	43	44	12	45	46	47	48
13	49	50	51	52	14	53	54	55	56
15	57	58	59	60	16	61	62	63	64
17	65	66	67	68	18	69	70	71	72
19	73	74	75	76					

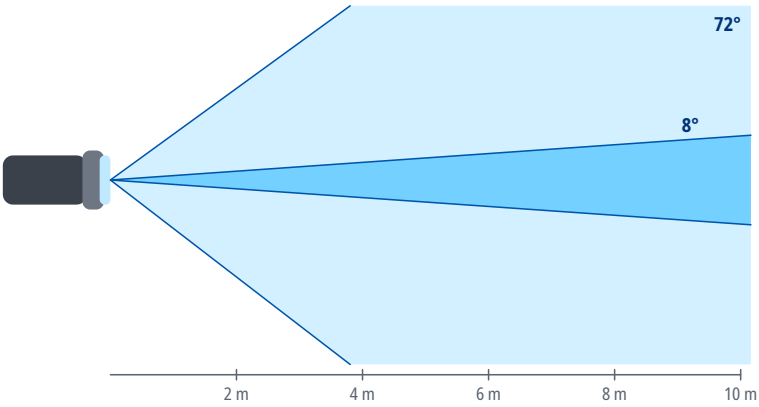
10 Technical specifications

Parameter	Value
Light source	LED
Zoom	8–72°
Pan	540°
Tilt	260°
RDM	yes (manufacturer ID 0x4753, device model ID 0x0521)
Operating temperature	0 to 40 °C

Speeds and ranges

Parameter	Value
Strobe frequency	1–25 Hz

Spot diameter



Distance	Ø 8°	Ø 72°
2 m	0.28 m	2.9 m
4 m	0.56 m	5.8 m
6 m	0.84 m	8.7 m
8 m	1.1 m	11.6 m
10 m	1.4 m	14.5 m
15 m	2.1 m	21.8 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.