DMX REFERENCE

# ACME TORNADO (TB 5 IP) DB x KVG

TORNADO (TB 5 IP ) DB x KVG

ACME



| | |
|---|---|
| **Manufacturer** | ACME |
| **GDTF file** | ACME_ACME_TORNADO_TB_5_IP_DB_x_KVG_153748.gdtf |
| **GDTF revision** | V2_0 · 2026-08-03 |
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# 1 About this manual

This document describes the TORNADO (TB 5 IP ) DB x KVG by ACME. It was compiled from the GDTF file ACME_ACME_TORNADO_TB_5_IP_DB_x_KVG_153748.gdtf from the GDTF-Share library.

File revision: “V2_0”.

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 ACME; 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 | 29 kg |

### DMX modes

| Mode | Channels | Units in one universe | First start addresses |
|---|---|---|---|
| Mode 1 41DMX 1 | 41 | 12 | 1, 42, 83, 124, ... |
| Mode 2 71 DMX | 71 | 7 | 1, 72, 143, 214, ... |
| Mode 3 75 DMX | 75 | 6 | 1, 76, 151, 226, ... |
| Mode 4 85 MDX | 85 | 6 | 1, 86, 171, 256, ... |
| Mode 5 170DMX | 331 | 1 | 1 |

### No light? Check these channels

- Mode 1 41DMX 1: CH 36 Dimmer above 0; CH 38 Shutter 1 at 8–15 “Open” or 132–139 or 182–189 or 232–239 or 248–255; CH 39 Shutter 2 at 8–15 “Open” or 132–139 or 182–189 or 232–239 or 248–255
- Mode 2 71 DMX: CH 66 Dimmer above 0; CH 68 Shutter 1 at 8–15 “Open” or 132–139 or 182–189 or 232–239 or 248–255; CH 69 Shutter 2 at 8–15 “Open” or 132–139 or 182–189 or 232–239 or 248–255
- Mode 3 75 DMX: CH 9 Shutter 1 at 8–15 “Open” or 132–139 or 182–189 or 232–239 or 248–255; CH 23 Shutter 2 at 8–15 “Open” or 132–139 or 182–189 or 232–239 or 248–255; CH 37 Shutter 3 at 8–15 “Open” or 132–139 or 182–189 or 232–239 or 248–255; CH 51 Shutter 4 at 8–15 “Open” or 132–139 or 182–189 or 232–239 or 248–255; CH 65 Shutter 5 at 8–15 “Open” or 132–139 or 182–189 or 232–239 or 248–255; CH 71 Dimmer above 0; CH 73 Shutter 6 at 8–15 “Open” or 132–139 or 182–189 or 232–239 or 248–255
- Mode 4 85 MDX: CH 9 Dimmer 1 above 0; CH 11 Shutter 1 at 8–15 “Open” or 132–139 or 182–189 or 232–239 or 248–255; CH 25 Dimmer 2 above 0; CH 27 Shutter 2 at 8–15 “Open” or 132–139 or 182–189 or 232–239 or 248–255; CH 41 Dimmer 3 above 0; CH 43 Shutter 3 at 8–15 “Open” or 132–139 or 182–189 or 232–239 or 248–255; CH 57 Dimmer 4 above 0; CH 59 Shutter 4 at 8–15 “Open” or 132–139 or 182–189 or 232–239 or 248–255; CH 73 Dimmer 5 above 0; CH 75 Shutter 5 at 8–15 “Open” or 132–139 or 182–189 or 232–239 or 248–255; CH 81 Dimmer 6 above 0; CH 83 Shutter 6 at 8–15 “Open” or 132–139 or 182–189 or 232–239 or 248–255
- Mode 5 170DMX: CH 166 Dimmer 1 above 0; CH 168 Dimmer 2 above 0; CH 171 Shutter at 8–15 “Open” or 132–139 or 182–189 or 232–239 or 248–255 (the same in each of the 45 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.

**⚠ WARNING**

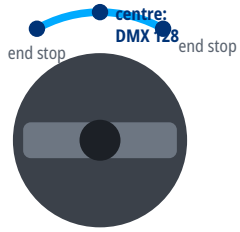
- The moving parts of the device (for example the head or arms) can move quickly and unexpectedly at any time – after power-on, during a reset, or on a command from the controller.
- Keep yourself and any objects out of the range of movement. While the device is switched on, do not touch the moving parts, 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**

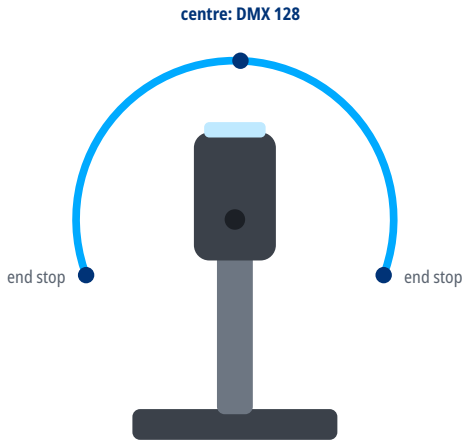
**Pan 59°**

top view




**Tilt 221°**

side view




# 5 Installation

**⚠ WARNING**

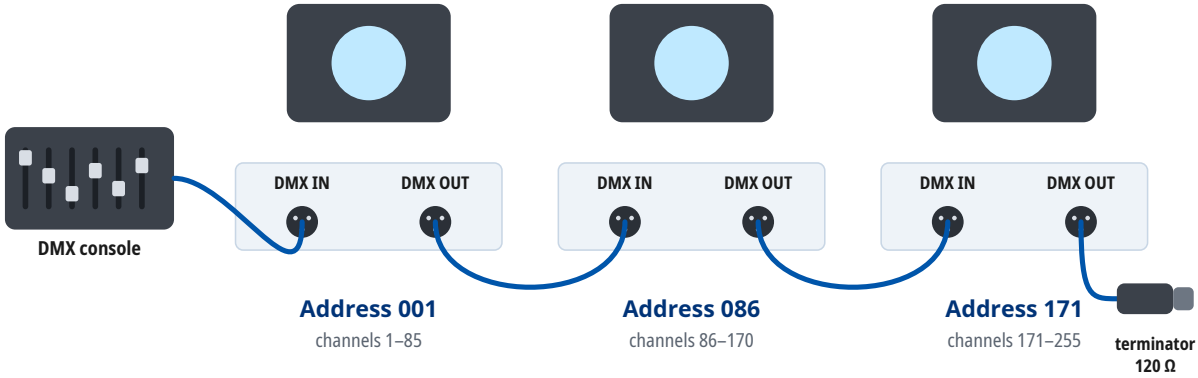
- Rigging must be carried out only by qualified persons in accordance with applicable regulations, in particular those for work at height.
- The supporting structure and fixings must safely carry the weight of all suspended devices; verify their load capacity in advance.
- Weight of the device: 29 kg.
- 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 4 85 MDX: every unit occupies 85 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**

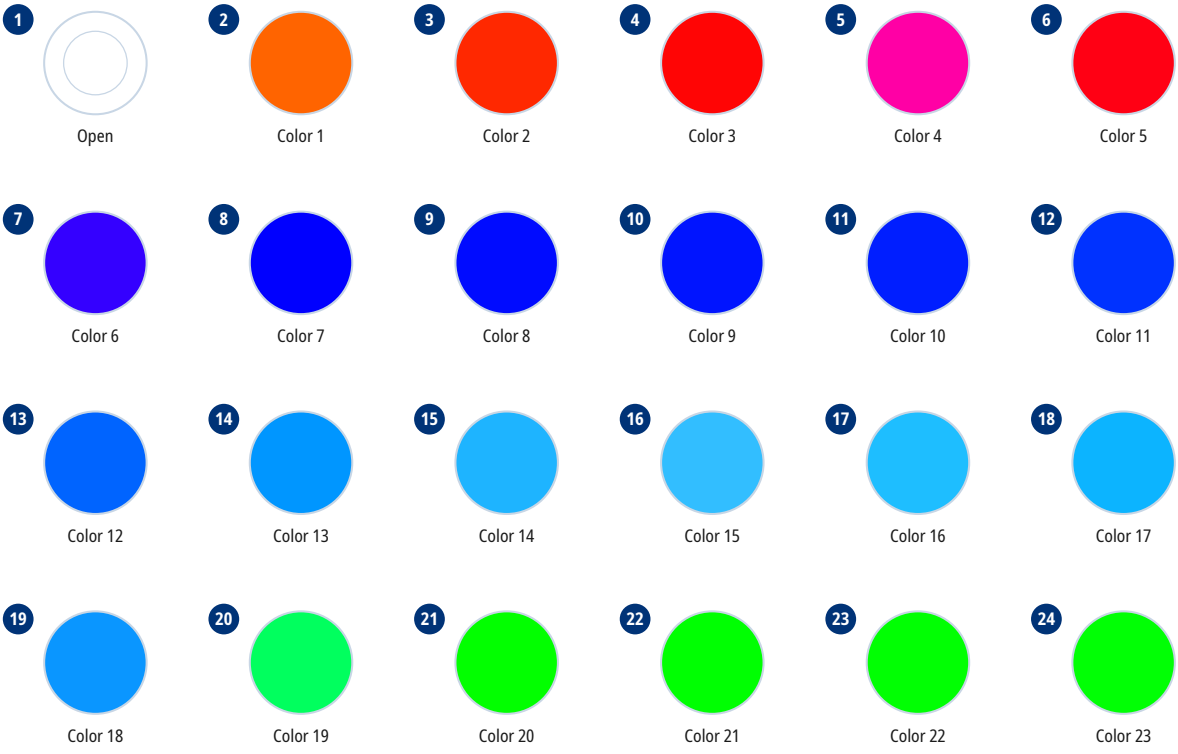
- The device occupies as many consecutive channels in the DMX universe as the selected DMX mode uses, starting at the set start address.
- Number of channels occupied in the DMX mode “Mode 5 170DMX”: 331.
- Choose start addresses so that the channels of individual devices do not overlap and the last occupied channel does not exceed 512. Devices with the same start address and mode respond identically.
- 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

| | Mode 1 41DMX 1<br>41 channels | Mode 2 71 DMX<br>71 channels | Mode 3 75 DMX<br>75 channels | Mode 4 85 MDX<br>85 channels | Mode 5 170DMX<br>331 channels |
|---|---|---|---|---|---|
| Pan / Tilt | **10 channels (1–23)** | **10 channels (1–55)** | **10 channels (1–59)** | **10 channels (1–67)** | **10 channels (1–135)** |
| Dimmer | **36** | **66** | **71** | **6 channels (9–81)** | **166, 168** |
| Dimmer resolution | 16 bit | 16 bit | 16 bit | 16 bit | 8 bit |
| Shutter / strobe | **38, 39** | **68, 69** | **6 channels (9–73)** | **6 channels (11–83)** | **45 channels (171–331)** |
| Color mixing | **26–29, 32–34** | **35 channels (5–64)** | **35 channels (5–69)** | **35 channels (5–79)** | **140 channels (5–165)** |
| Color temperature | **30** | | | | |
| Color wheel | **31** | | | | |
| Zoom | **5× (5–25)** | **5× (9–61)** | **5× (10–66)** | **5× (12–76)** | **5× (9–141)** |
| Pixel control | | ✓ | ✓ | ✓ | 8 + 8 + 8 + 8 + 8 + 45 cells |

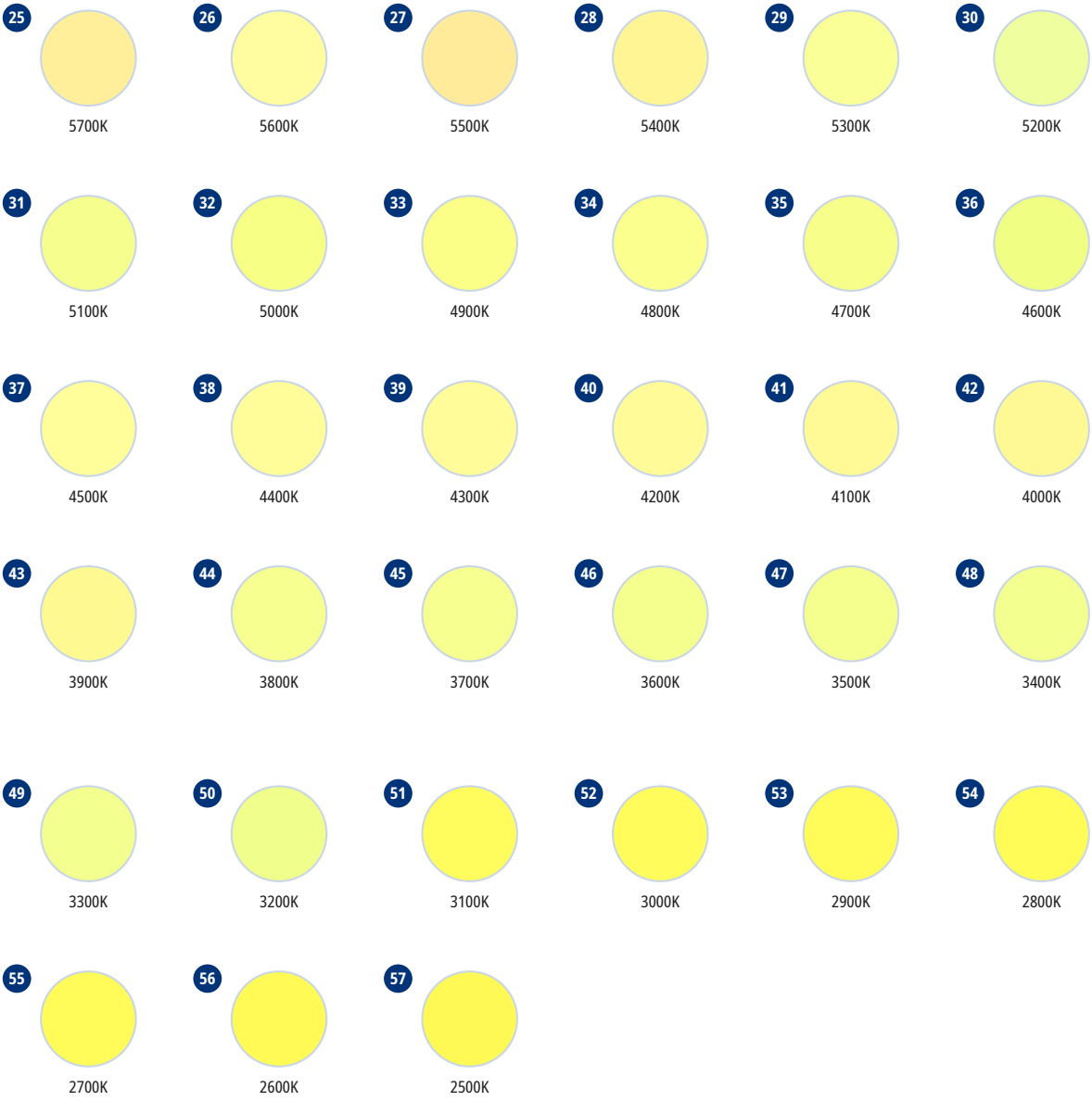
## Color wheel 1



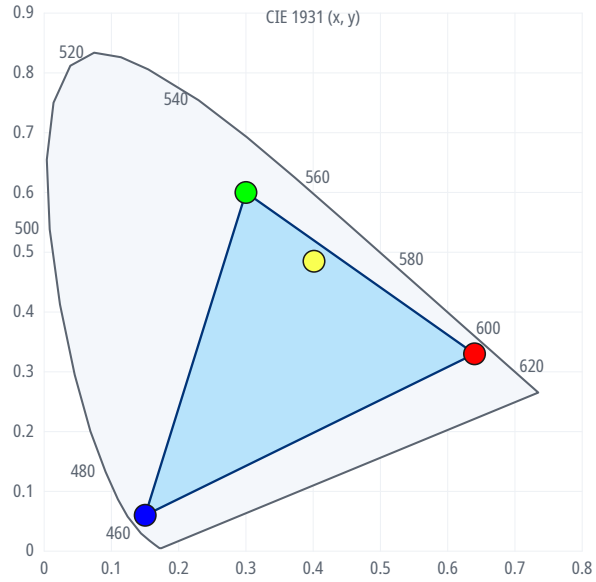
25 Color 24
26 Color 25
27 Color 26
28 Color 27
29 Color 28
30 Color 29
31 Color 30
32 Color 31
33 Color 32
34 Color 33

## Color wheel 2

1 Open
2 8000K
3 7900K
4 7800k
5 7700k
6 7600k
7 7500K
8 7400K
9 7300K
10 7200K
11 7100K
12 7000K
13 6900K
14 6800K
15 6700K
16 6600K
17 6500K
18 6400K
19 6300K
20 6200K
21 6100K
22 6000K
23 5900K
24 5800K


25
5700K
26
5600K
27
5500K
28
5400K
29
5300K
30
5200K
31
5100K
32
5000K
33
4900K
34
4800K
35
4700K
36
4600K
37
4500K
38
4400K
39
4300K
40
4200K
41
4100K
42
4000K
43
3900K
44
3800K
45
3700K
46
3600K
47
3500K
48
3400K
49
3300K
50
3200K
51
3100K
52
3000K
53
2900K
54
2800K
55
2700K
56
2600K
57
2500K

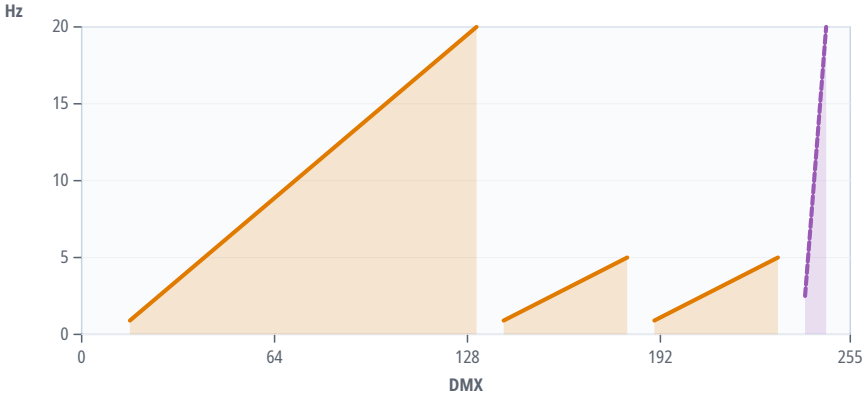
## LED colors and the colors they mix




| LED | x | y |
|---|---|---|
| Red | 0.640 | 0.330 |
| Green | 0.300 | 0.600 |
| Blue | 0.150 | 0.060 |
| Lime | 0.401 | 0.485 |

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

## Strobe rate



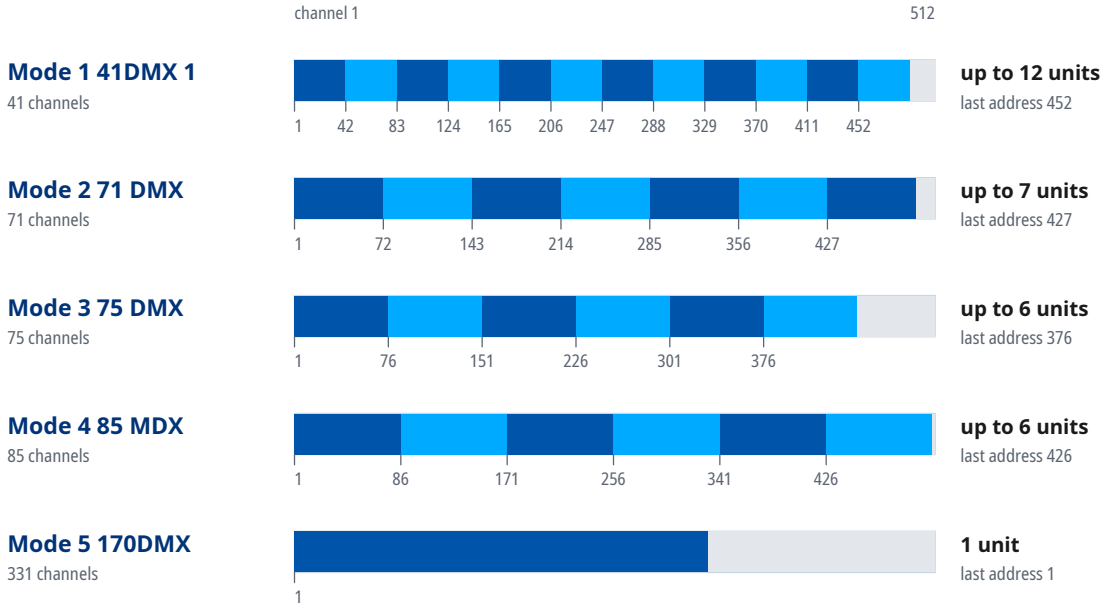

## Cells (pixels)

| 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|
| CH 10 | CH 43 | CH 76 | CH 109 | CH 142 |

5 cells where the GDTF file places them (seen from above), numbered by their first DMX channel (CH) in the mode “Mode 3 75 DMX”.

# 9 DMX channels

### Units in one DMX universe




### Start addresses of 20 units in the mode “Mode 5 170DMX”

| Unit | Start address | Unit | Start address | Unit | Start address | Unit | Start address |
|---|---|---|---|---|---|---|---|
| 1 | 1 | 6 | U6 · 1 | 11 | U11 · 1 | 16 | U16 · 1 |
| 2 | U2 · 1 | 7 | U7 · 1 | 12 | U12 · 1 | 17 | U17 · 1 |
| 3 | U3 · 1 | 8 | U8 · 1 | 13 | U13 · 1 | 18 | U18 · 1 |
| 4 | U4 · 1 | 9 | U9 · 1 | 14 | U14 · 1 | 19 | U19 · 1 |
| 5 | U5 · 1 | 10 | U10 · 1 | 15 | U15 · 1 | 20 | U20 · 1 |

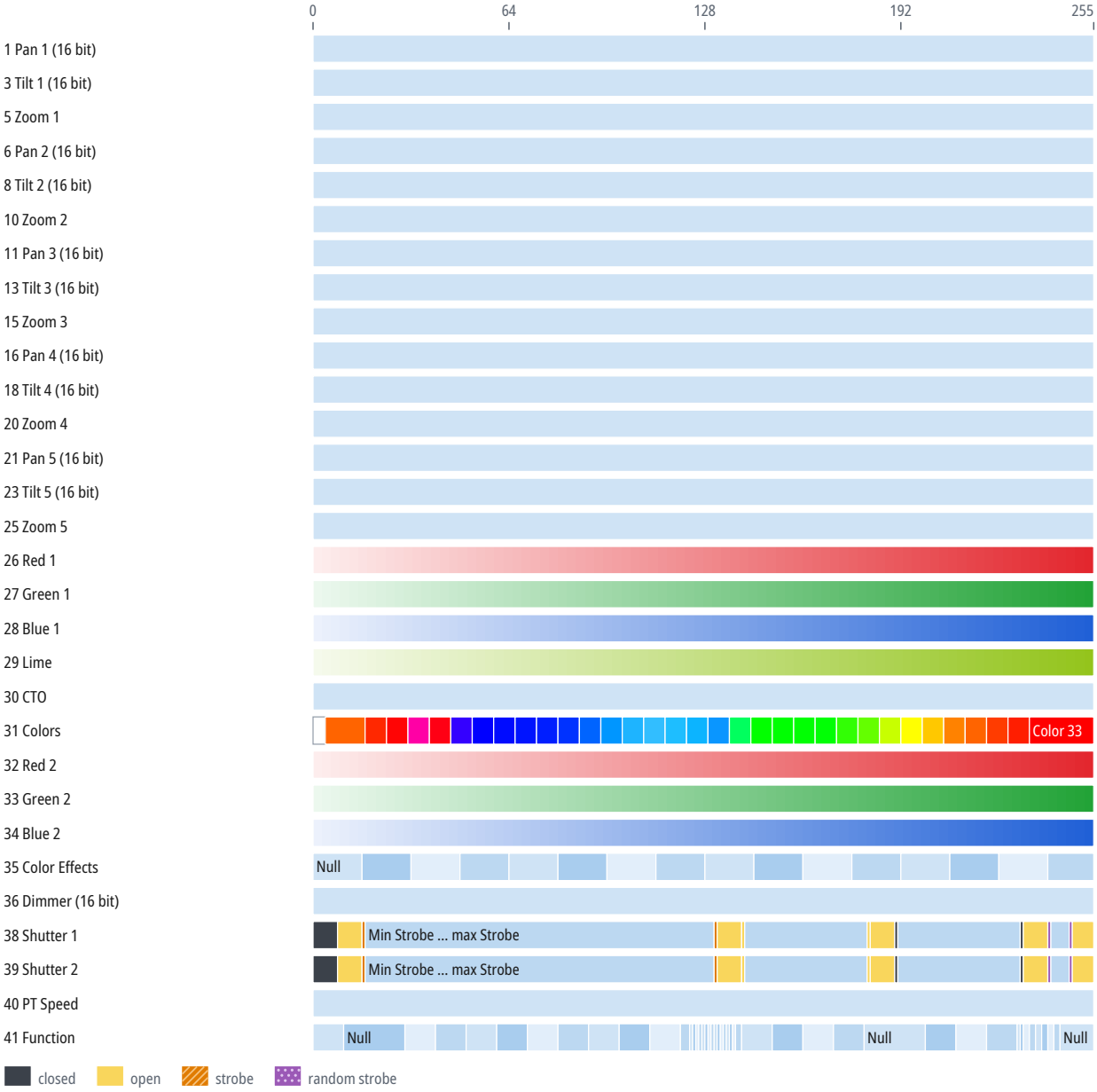
Where a DMX universe is full, the next units continue in the next universe: “U2 · 1” is address 1 in the second universe, counted from the universe of the first unit.

## Mode 1 41DMX 1

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 36 Dimmer above 0; CH 38 Shutter 1 at 8–15 “Open” or 132–139 or 182–189 or 232–239 or 248–255; CH 39 Shutter 2 at 8–15 “Open” or 132–139 or 182–189 or 232–239 or 248–255. The GDTF file gives these values for a console's Highlight function: CH 26 Red 1 255, CH 27 Green 1 255, CH 28 Blue 1 255, CH 32 Red 2 255, CH 33 Green 2 255, CH 34 Blue 2 255, CH 36 Dimmer 255, CH 38 Shutter 1 255, CH 39 Shutter 2 255.

### Channel functions at a glance




| CH | Function | DMX | Description |
|---|---|---|---|
| **1** | Pan 1 | 0–255 | 59° |
| **2** | Pan 1 Fine | 0–255 | Fine adjustment of CH 1 |
| **3** | Tilt 1 | 0–255 | 221° |
| **4** | Tilt 1 Fine | 0–255 | Fine adjustment of CH 3 |

| CH | Function | DMX | Description |
|---|---|---|---|
| **5** | Zoom 1 | 0–255 | 35–3° |
| **6** | Pan 2 | 0–255 | 59° |
| **7** | Pan 2 Fine | 0–255 | Fine adjustment of CH 6 |
| **8** | Tilt 2 | 0–255 | 221° |
| **9** | Tilt 2 Fine | 0–255 | Fine adjustment of CH 8 |
| **10** | Zoom 2 | 0–255 | 35–3° |
| **11** | Pan 3 | 0–255 | 59° |
| **12** | Pan 3 Fine | 0–255 | Fine adjustment of CH 11 |
| **13** | Tilt 3 | 0–255 | 221° |
| **14** | Tilt 3 Fine | 0–255 | Fine adjustment of CH 13 |
| **15** | Zoom 3 | 0–255 | 35–3° |
| **16** | Pan 4 | 0–255 | 59° |
| **17** | Pan 4 Fine | 0–255 | Fine adjustment of CH 16 |
| **18** | Tilt 4 | 0–255 | 221° |
| **19** | Tilt 4 Fine | 0–255 | Fine adjustment of CH 18 |
| **20** | Zoom 4 | 0–255 | 35–3° |
| **21** | Pan 5 | 0–255 | 59° |
| **22** | Pan 5 Fine | 0–255 | Fine adjustment of CH 21 |
| **23** | Tilt 5 | 0–255 | 221° |
| **24** | Tilt 5 Fine | 0–255 | Fine adjustment of CH 23 |
| **25** | Zoom 5 | 0–255 | 35–3° |
| **26** | Red 1 | 0–255 | |
| **27** | Green 1 | 0–255 | |
| **28** | Blue 1 | 0–255 | |
| **29** | Lime | 0–255 | |
| **30** | CTO | 0–255 | 8000–2500 K |
| **31** | Colors | 0–3 | Open |
| | | 4–16 | Color 1 |
| | | 17–23 | Color 2 |
| | | 24–30 | Color 3 |
| | | 31–37 | Color 4 |
| | | 38–44 | Color 5 |
| | | 45–51 | Color 6 |
| | | 52–58 | Color 7 |
| | | 59–65 | Color 8 |
| | | 66–72 | Color 9 |
| | | 73–79 | Color 10 |
| | | 80–86 | Color 11 |
| | | 87–93 | Color 12 |
| | | 94–100 | Color 13 |
| | | 101–107 | Color 14 |
| | | 108–114 | Color 15 |

| CH | Function | DMX | Description |
|---|---|---|---|
| **31** | Colors (continued) | 115–121 | Color 16 |
| | | 122–128 | Color 17 |
| | | 129–135 | Color 18 |
| | | 136–142 | Color 19 |
| | | 143–149 | Color 20 |
| | | 150–156 | Color 21 |
| | | 157–163 | Color 22 |
| | | 164–170 | Color 23 |
| | | 171–177 | Color 24 |
| | | 178–184 | Color 25 |
| | | 185–191 | Color 26 |
| | | 192–198 | Color 27 |
| | | 199–205 | Color 28 |
| | | 206–212 | Color 29 |
| | | 213–219 | Color 30 |
| | | 220–226 | Color 31 |
| | | 227–233 | Color 32 |
| | | 234–255 | Color 33 |
| **32** | Red 2 | 0–255 | |
| **33** | Green 2 | 0–255 | |
| **34** | Blue 2 | 0–255 | |
| **35** | Color Effects | 0–15 | Null |
| | | 16–31 | Macro Effect 1 Fast to Slow |
| | | 32–47 | Macro Effect 2 Fast to Slow |
| | | 48–63 | Macro Effect 3 Fast to Slow |
| | | 64–79 | Macro Effect 4 Fast to Slow |
| | | 80–95 | Macro Effect 5 Fast to Slow |
| | | 96–111 | Macro Effect 6 Fast to Slow |
| | | 112–127 | Macro Effect 7 Fast to Slow |
| | | 128–143 | Macro Effect 8 Fast to Slow |
| | | 144–159 | Macro Effect 9 Fast to Slow |
| | | 160–175 | Macro Effect 10 Fast to Slow |
| | | 176–191 | Macro Effect 11 Fast to Slow |
| | | 192–207 | Macro Effect 12 Fast to Slow |
| | | 208–223 | Macro Effect 13 Fast to Slow |
| | | 224–239 | Macro Effect 14 Fast to Slow |
| | | 240–255 | Macro Effect 15 Fast to Slow |
| **36** | Dimmer | 0–255 | |
| **37** | Dimmer Fine | 0–255 | Fine adjustment of CH 36 |
| **38** | Shutter 1 | 0–7 | Closed |
| | | 8–15 | Open |
| | | 16 | Min Strobe |

| CH | Function | DMX | Description |
|---|---|---|---|
| **38** | Shutter 1 (continued) | 17–130 | Min Strobe ... max Strobe |
| | | 131 | Max Strobe |
| | | 132–139 | Open 2 |
| | | 140 | Min Pulse Open |
| | | 141–180 | Min Pulse Open ... max Pulse Open |
| | | 181 | Max Pulse Open |
| | | 182–189 | Open 3 |
| | | 190 | Min Pulse Close |
| | | 191–230 | Min Pulse Close ... max Pulse Close |
| | | 231 | Max Pulse Close |
| | | 232–239 | Open 4 |
| | | 240 | Min Strobe Rand |
| | | 241–246 | Min Strobe Rand ... max Strobe Rand |
| | | 247 | Max Strobe Rand |
| | | 248–255 | Open 5 |
| **39** | Shutter 2 | 0–7 | Closed |
| | | 8–15 | Open |
| | | 16 | Min Strobe |
| | | 17–130 | Min Strobe ... max Strobe |
| | | 131 | Max Strobe |
| | | 132–139 | Open 2 |
| | | 140 | Min Pulse Open |
| | | 141–180 | Min Pulse Open ... max Pulse Open |
| | | 181 | Max Pulse Open |
| | | 182–189 | Open 3 |
| | | 190 | Min Pulse Close |
| | | 191–230 | Min Pulse Close ... max Pulse Close |
| | | 231 | Max Pulse Close |
| | | 232–239 | Open 4 |
| | | 240 | Min Strobe Rand |
| | | 241–246 | Min Strobe Rand ... max Strobe Rand |
| | | 247 | Max Strobe Rand |
| | | 248–255 | Open 5 |
| **40** | PT Speed | 0–255 | |
| **41** | Function | 0–9 | Null 2 |
| | | 10–29 | Null |
| | | 30–39 | Dimmer Curve: Linear |
| | | 40–49 | Dimmer Curve: Square Law |
| | | 50–59 | Dimmer Curve: Inv SQ Law |
| | | 60–69 | Dimmer Curve: S Curve |
| | | 70–79 | Fan Mode: Standard |
| | | 80–89 | Fan Mode: Quiet |

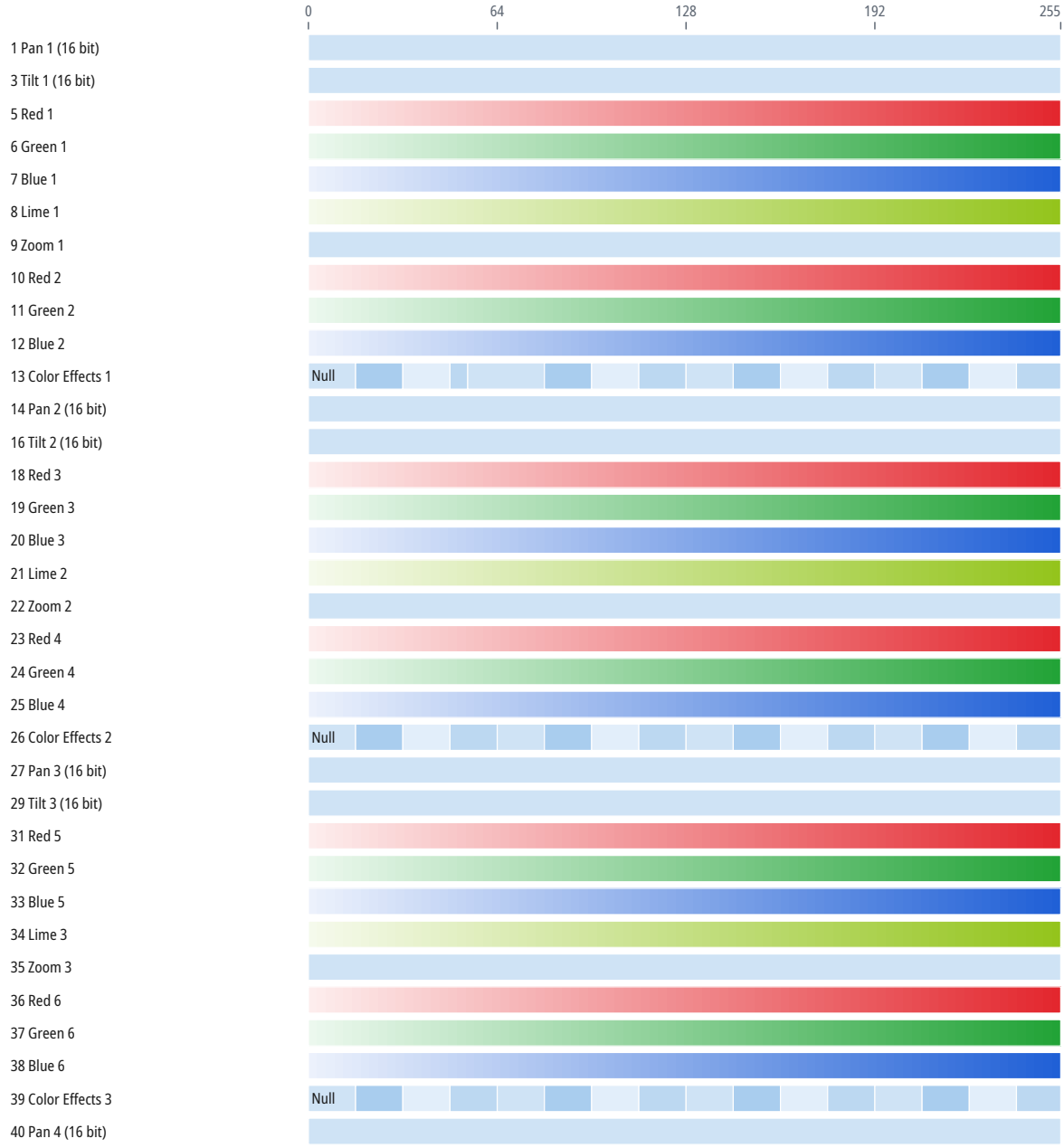
| CH | Function | DMX | Description |
|---|---|---|---|
| **41** | Function (continued) | 90–99 | Null 3 |
| | | 100–109 | Led Frequency Setting Enable |
| | | 110–119 | Led Frequency Setting Disable |
| | | 120–122 | Refresh Rate: Null |
| | | 123 | 900Hz |
| | | 124 | 1000Hz |
| | | 125 | 1100Hz |
| | | 126 | 1200Hz |
| | | 127 | 1300Hz |
| | | 128 | 1400Hz |
| | | 129 | 1500Hz |
| | | 130 | 2500Hz |
| | | 131 | 4000Hz |
| | | 132 | 5000Hz |
| | | 133 | 6000Hz |
| | | 134 | 10KHz |
| | | 135 | 15KHz |
| | | 136 | 20KHz |
| | | 137 | 25KHz |
| | | 138–139 | Refresh Rate: Null |
| | | 140–149 | P/T Reset |
| | | 150–159 | Eff Reset |
| | | 160–169 | Head Invert: Yes |
| | | 170–179 | Head Invert: No |
| | | 180–199 | Null |
| | | 200–209 | All Reset |
| | | 210–219 | Dimmer Speed: Fast |
| | | 220–229 | Dimmer Speed: Smooth |
| | | 230 | Dimming Start Mode: High |
| | | 231 | Dimming Start Mode: Low |
| | | 232–233 | Inver Pixel Order :Yes |
| | | 234–235 | Inver Pixel Order :No |
| | | 236–237 | Pan Inver :Yes |
| | | 238–239 | Pan Inver :No |
| | | 240–241 | Tilt Inver :Yes |
| | | 242–243 | Tilt Inver :No |
| | | 244–255 | Null |

## Mode 2 71 DMX

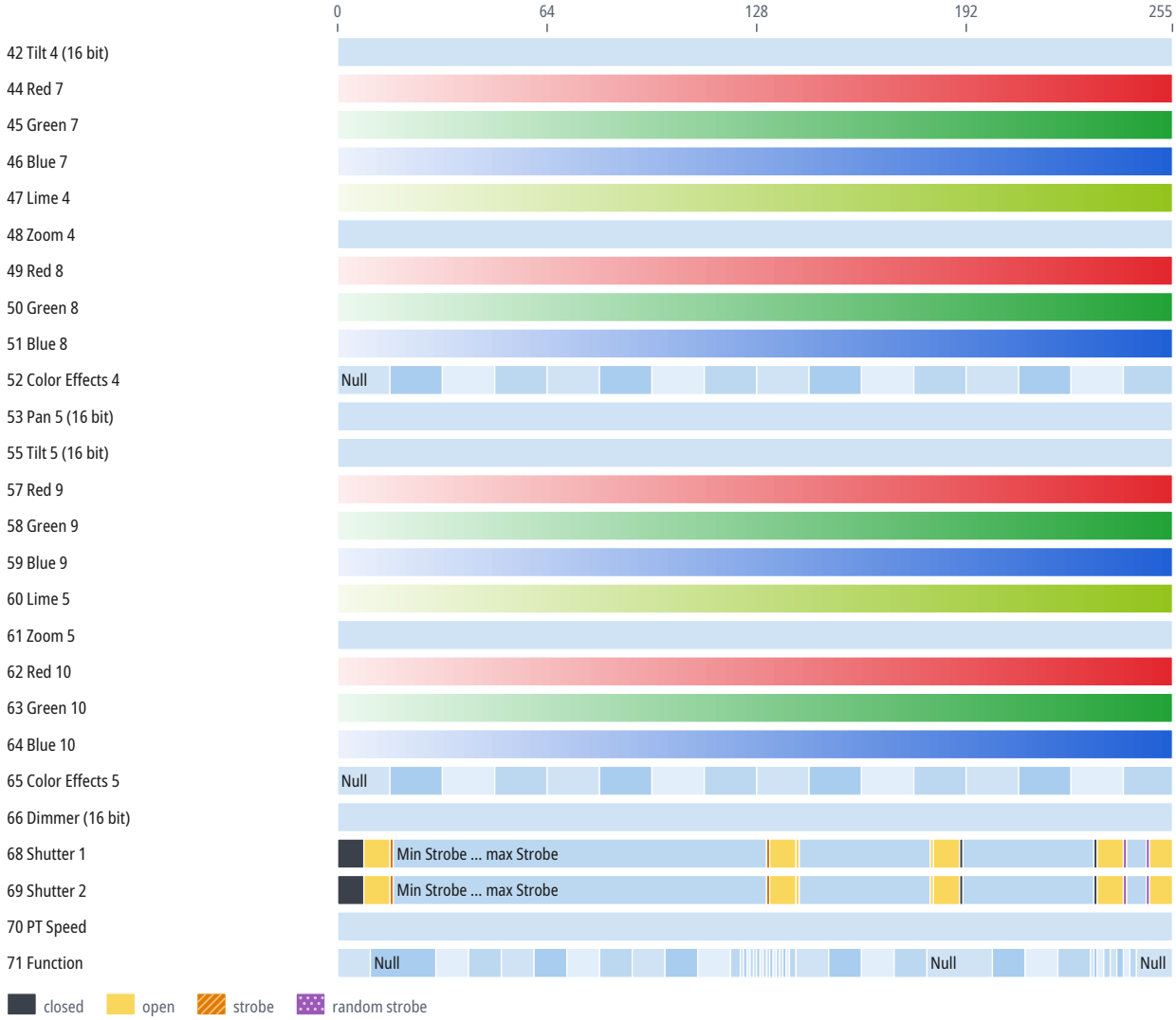
16-bit parameters use two channels, coarse and fine: value = 256 × coarse value + fine value.

If the device receives DMX in this mode but gives no light, check these channels: CH 66 Dimmer above 0; CH 68 Shutter 1 at 8–15 “Open” or 132–139 or 182–189 or 232–239 or 248–255; CH 69 Shutter 2 at 8–15 “Open” or 132–139 or 182–189 or 232–239 or 248–255. The GDTF file gives these values for a console's Highlight function: CH 5 Red 1 255, CH 6 Green 1 255, CH 7 Blue 1 255, CH 10 Red 2 255, CH 11 Green 2 255, CH 12 Blue 2 255, CH 18 Red 3 255, CH 19 Green 3 255, CH 20 Blue 3 255, CH 23 Red 4 255, CH 24 Green 4 255, CH 25 Blue 4 255, CH 31 Red 5 255, CH 32 Green 5 255, CH 33 Blue 5 255, CH 36 Red 6 255, CH 37 Green 6 255, CH 38 Blue 6 255, CH 44 Red 7 255, CH 45 Green 7 255, CH 46 Blue 7 255, CH 49 Red 8 255, CH 50 Green 8 255, CH 51 Blue 8 255, CH 57 Red 9 255, CH 58 Green 9 255, CH 59 Blue 9 255, CH 62 Red 10 255, CH 63 Green 10 255, CH 64 Blue 10 255, CH 66 Dimmer 255, CH 68 Shutter 1 255, CH 69 Shutter 2 255.

### Channel functions at a glance



## Channel functions at a glance




| CH | Function | DMX | Description |
|---|---|---|---|
| **1** | Pan 1 | 0–255 | 59° |
| **2** | Pan 1 Fine | 0–255 | Fine adjustment of CH 1 |
| **3** | Tilt 1 | 0–255 | 221° |
| **4** | Tilt 1 Fine | 0–255 | Fine adjustment of CH 3 |
| **5** | Red 1 | 0–255 | |
| **6** | Green 1 | 0–255 | |
| **7** | Blue 1 | 0–255 | |
| **8** | Lime 1 | 0–255 | |
| **9** | Zoom 1 | 0–255 | 35–3° |
| **10** | Red 2 | 0–255 | |
| **11** | Green 2 | 0–255 | |
| **12** | Blue 2 | 0–255 | |
| **13** | Color Effects 1 | 0–15 | Null |
| | | 16–31 | Macro Effect 1 Fast to Slow |
| | | 32–47 | Macro Effect 2 Fast to Slow |

| CH | Function | DMX | Description |
|---|---|---|---|
| **13** | Color Effects 1 (continued) | 48–53 | Macro Effect 3 Fast to Slow |
| | | 54–79 | Macro Effect 4 Fast to Slow |
| | | 80–95 | Macro Effect 5 Fast to Slow |
| | | 96–111 | Macro Effect 6 Fast to Slow |
| | | 112–127 | Macro Effect 7 Fast to Slow |
| | | 128–143 | Macro Effect 8 Fast to Slow |
| | | 144–159 | Macro Effect 9 Fast to Slow |
| | | 160–175 | Macro Effect 10 Fast to Slow |
| | | 176–191 | Macro Effect 11 Fast to Slow |
| | | 192–207 | Macro Effect 12 Fast to Slow |
| | | 208–223 | Macro Effect 13 Fast to Slow |
| | | 224–239 | Macro Effect 14 Fast to Slow |
| | | 240–255 | Macro Effect 15 Fast to Slow |
| **14** | Pan 2 | 0–255 | 59° |
| **15** | Pan 2 Fine | 0–255 | Fine adjustment of CH 14 |
| **16** | Tilt 2 | 0–255 | 221° |
| **17** | Tilt 2 Fine | 0–255 | Fine adjustment of CH 16 |
| **18** | Red 3 | 0–255 | |
| **19** | Green 3 | 0–255 | |
| **20** | Blue 3 | 0–255 | |
| **21** | Lime 2 | 0–255 | |
| **22** | Zoom 2 | 0–255 | 35–3° |
| **23** | Red 4 | 0–255 | |
| **24** | Green 4 | 0–255 | |
| **25** | Blue 4 | 0–255 | |
| **26** | Color Effects 2 | 0–15 | Null |
| | | 16–31 | Macro Effect 1 Fast to Slow |
| | | 32–47 | Macro Effect 2 Fast to Slow |
| | | 48–63 | Macro Effect 3 Fast to Slow |
| | | 64–79 | Macro Effect 4 Fast to Slow |
| | | 80–95 | Macro Effect 5 Fast to Slow |
| | | 96–111 | Macro Effect 6 Fast to Slow |
| | | 112–127 | Macro Effect 7 Fast to Slow |
| | | 128–143 | Macro Effect 8 Fast to Slow |
| | | 144–159 | Macro Effect 9 Fast to Slow |
| | | 160–175 | Macro Effect 10 Fast to Slow |
| | | 176–191 | Macro Effect 11 Fast to Slow |
| | | 192–207 | Macro Effect 12 Fast to Slow |
| | | 208–223 | Macro Effect 13 Fast to Slow |
| | | 224–239 | Macro Effect 14 Fast to Slow |
| | | 240–255 | Macro Effect 15 Fast to Slow |
| **27** | Pan 3 | 0–255 | 59° |

| CH | Function | DMX | Description |
|---|---|---|---|
| **28** | Pan 3 Fine | 0–255 | Fine adjustment of CH 27 |
| **29** | Tilt 3 | 0–255 | 221° |
| **30** | Tilt 3 Fine | 0–255 | Fine adjustment of CH 29 |
| **31** | Red 5 | 0–255 | |
| **32** | Green 5 | 0–255 | |
| **33** | Blue 5 | 0–255 | |
| **34** | Lime 3 | 0–255 | |
| **35** | Zoom 3 | 0–255 | 35–3° |
| **36** | Red 6 | 0–255 | |
| **37** | Green 6 | 0–255 | |
| **38** | Blue 6 | 0–255 | |
| **39** | Color Effects 3 | 0–15 | Null |
| | | 16–31 | Macro Effect 1 Fast to Slow |
| | | 32–47 | Macro Effect 2 Fast to Slow |
| | | 48–63 | Macro Effect 3 Fast to Slow |
| | | 64–79 | Macro Effect 4 Fast to Slow |
| | | 80–95 | Macro Effect 5 Fast to Slow |
| | | 96–111 | Macro Effect 6 Fast to Slow |
| | | 112–127 | Macro Effect 7 Fast to Slow |
| | | 128–143 | Macro Effect 8 Fast to Slow |
| | | 144–159 | Macro Effect 9 Fast to Slow |
| | | 160–175 | Macro Effect 10 Fast to Slow |
| | | 176–191 | Macro Effect 11 Fast to Slow |
| | | 192–207 | Macro Effect 12 Fast to Slow |
| | | 208–223 | Macro Effect 13 Fast to Slow |
| | | 224–239 | Macro Effect 14 Fast to Slow |
| | | 240–255 | Macro Effect 15 Fast to Slow |
| **40** | Pan 4 | 0–255 | 59° |
| **41** | Pan 4 Fine | 0–255 | Fine adjustment of CH 40 |
| **42** | Tilt 4 | 0–255 | 221° |
| **43** | Tilt 4 Fine | 0–255 | Fine adjustment of CH 42 |
| **44** | Red 7 | 0–255 | |
| **45** | Green 7 | 0–255 | |
| **46** | Blue 7 | 0–255 | |
| **47** | Lime 4 | 0–255 | |
| **48** | Zoom 4 | 0–255 | 35–3° |
| **49** | Red 8 | 0–255 | |
| **50** | Green 8 | 0–255 | |
| **51** | Blue 8 | 0–255 | |
| **52** | Color Effects 4 | 0–15 | Null |
| | | 16–31 | Macro Effect 1 Fast to Slow |
| | | 32–47 | Macro Effect 2 Fast to Slow |

| CH | Function | DMX | Description |
|---|---|---|---|
| **52** | Color Effects 4 (continued) | 48–63 | Macro Effect 3 Fast to Slow |
| | | 64–79 | Macro Effect 4 Fast to Slow |
| | | 80–95 | Macro Effect 5 Fast to Slow |
| | | 96–111 | Macro Effect 6 Fast to Slow |
| | | 112–127 | Macro Effect 7 Fast to Slow |
| | | 128–143 | Macro Effect 8 Fast to Slow |
| | | 144–159 | Macro Effect 9 Fast to Slow |
| | | 160–175 | Macro Effect 10 Fast to Slow |
| | | 176–191 | Macro Effect 11 Fast to Slow |
| | | 192–207 | Macro Effect 12 Fast to Slow |
| | | 208–223 | Macro Effect 13 Fast to Slow |
| | | 224–239 | Macro Effect 14 Fast to Slow |
| | | 240–255 | Macro Effect 15 Fast to Slow |
| **53** | Pan 5 | 0–255 | 59° |
| **54** | Pan 5 Fine | 0–255 | Fine adjustment of CH 53 |
| **55** | Tilt 5 | 0–255 | 221° |
| **56** | Tilt 5 Fine | 0–255 | Fine adjustment of CH 55 |
| **57** | Red 9 | 0–255 | |
| **58** | Green 9 | 0–255 | |
| **59** | Blue 9 | 0–255 | |
| **60** | Lime 5 | 0–255 | |
| **61** | Zoom 5 | 0–255 | 35–3° |
| **62** | Red 10 | 0–255 | |
| **63** | Green 10 | 0–255 | |
| **64** | Blue 10 | 0–255 | |
| **65** | Color Effects 5 | 0–15 | Null |
| | | 16–31 | Macro Effect 1 Fast to Slow |
| | | 32–47 | Macro Effect 2 Fast to Slow |
| | | 48–63 | Macro Effect 3 Fast to Slow |
| | | 64–79 | Macro Effect 4 Fast to Slow |
| | | 80–95 | Macro Effect 5 Fast to Slow |
| | | 96–111 | Macro Effect 6 Fast to Slow |
| | | 112–127 | Macro Effect 7 Fast to Slow |
| | | 128–143 | Macro Effect 8 Fast to Slow |
| | | 144–159 | Macro Effect 9 Fast to Slow |
| | | 160–175 | Macro Effect 10 Fast to Slow |
| | | 176–191 | Macro Effect 11 Fast to Slow |
| | | 192–207 | Macro Effect 12 Fast to Slow |
| | | 208–223 | Macro Effect 13 Fast to Slow |
| | | 224–239 | Macro Effect 14 Fast to Slow |
| | | 240–255 | Macro Effect 15 Fast to Slow |
| **66** | Dimmer | 0–255 | |

| CH | Function | DMX | Description |
|---|---|---|---|
| **67** | Dimmer Fine | 0–255 | Fine adjustment of CH 66 |
| **68** | Shutter 1 | | Same as CH 38 in the mode “Mode 1 41DMX 1” (p. 14) |
| **69** | Shutter 2 | | Same as CH 39 in the mode “Mode 1 41DMX 1” (p. 15) |
| **70** | PT Speed | 0–255 | |
| **71** | Function | 0–9 | Null 2 |
| | | 10–29 | Null |
| | | 30–39 | Dimmer Curve: Linear |
| | | 40–49 | Dimmer Curve: Square Law |
| | | 50–59 | Dimmer Curve: Inv SQ Law |
| | | 60–69 | Dimmer Curve: S Curve |
| | | 70–79 | Fan Mode: Standard |
| | | 80–89 | Fan Mode: Quiet |
| | | 90–99 | Null 3 |
| | | 100–109 | Led Frequency Setting Enable |
| | | 110–119 | Led Frequency Setting Disable |
| | | 120–122 | Refresh Rate: Null |
| | | 123 | 900Hz |
| | | 124 | 1000Hz |
| | | 125 | 1100Hz |
| | | 126 | 1200Hz |
| | | 127 | 1300Hz |
| | | 128 | 1400Hz |
| | | 129 | 1500Hz |
| | | 130 | 2500Hz |
| | | 131 | 4000Hz |
| | | 132 | 5000Hz |
| | | 133 | 6000Hz |
| | | 134 | 10KHz |
| | | 135 | 15KHz |
| | | 136 | 20KHz |
| | | 137 | 25KHz |
| | | 138–139 | Refresh Rate: Null |
| | | 140–149 | P/T Reset |
| | | 150–159 | Eff Reset |
| | | 160–169 | Head Invert: Yes |
| | | 170–179 | Head Invert: No |
| | | 180–199 | Null |
| | | 200–209 | All Reset |
| | | 210–219 | Dimmer Speed: Fast |
| | | 220–229 | Dimmer Speed: Smooth |
| | | 230 | Dimming Start Mode: High |
| | | 231 | Dimming Start Mode: Low |

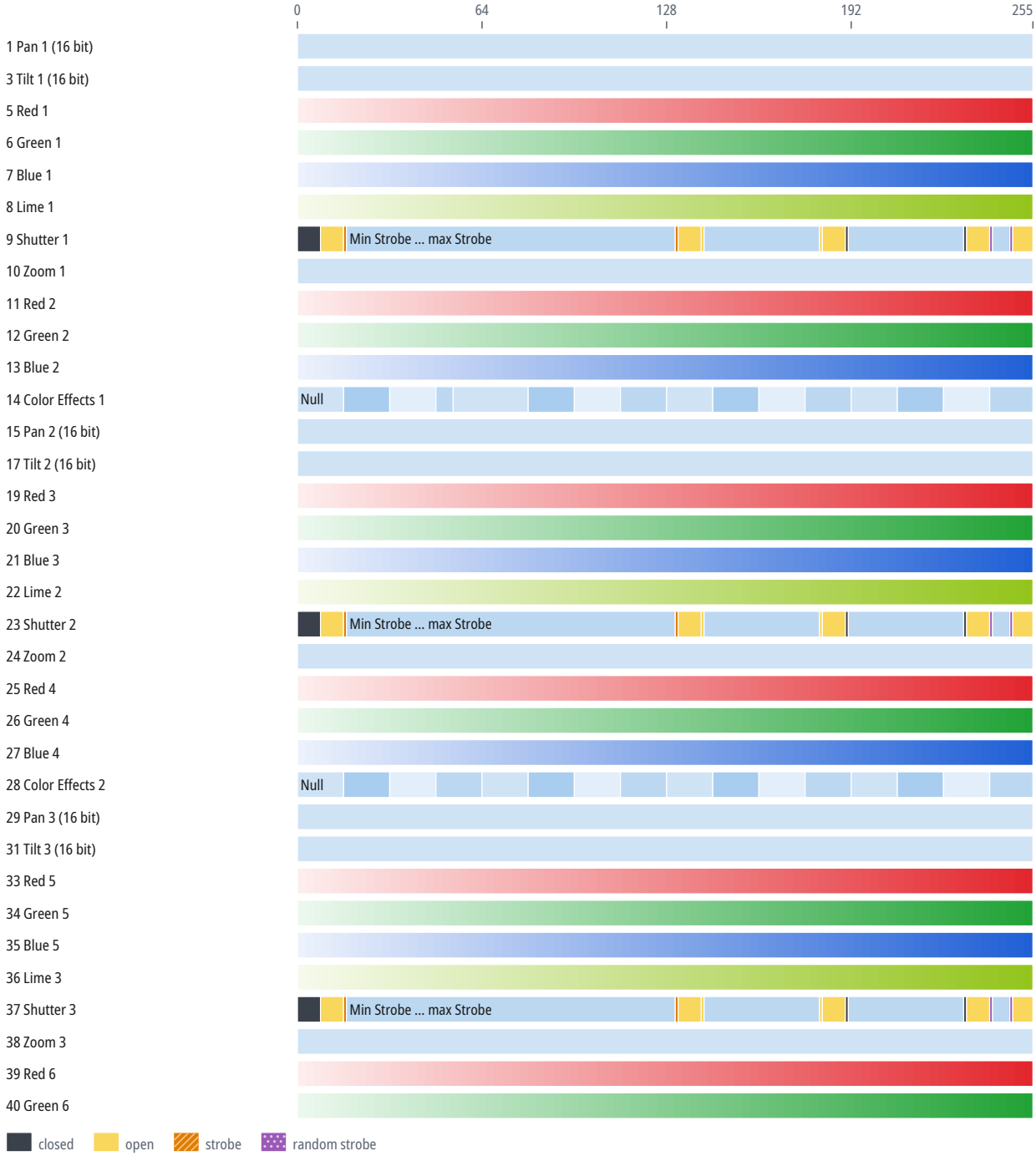
| CH | Function | DMX | Description |
|---|---|---|---|
| **71** | Function (continued) | 232–233 | Invert Pixel Order Yes |
| | | 234–235 | Invert Pixel Order NO |
| | | 236–237 | Pan Invert Yes |
| | | 238–239 | Pan Invert No |
| | | 240–241 | Tilt Invert Yes |
| | | 242–243 | Tilt Invert No |
| | | 244–255 | Null |

## Mode 3 75 DMX

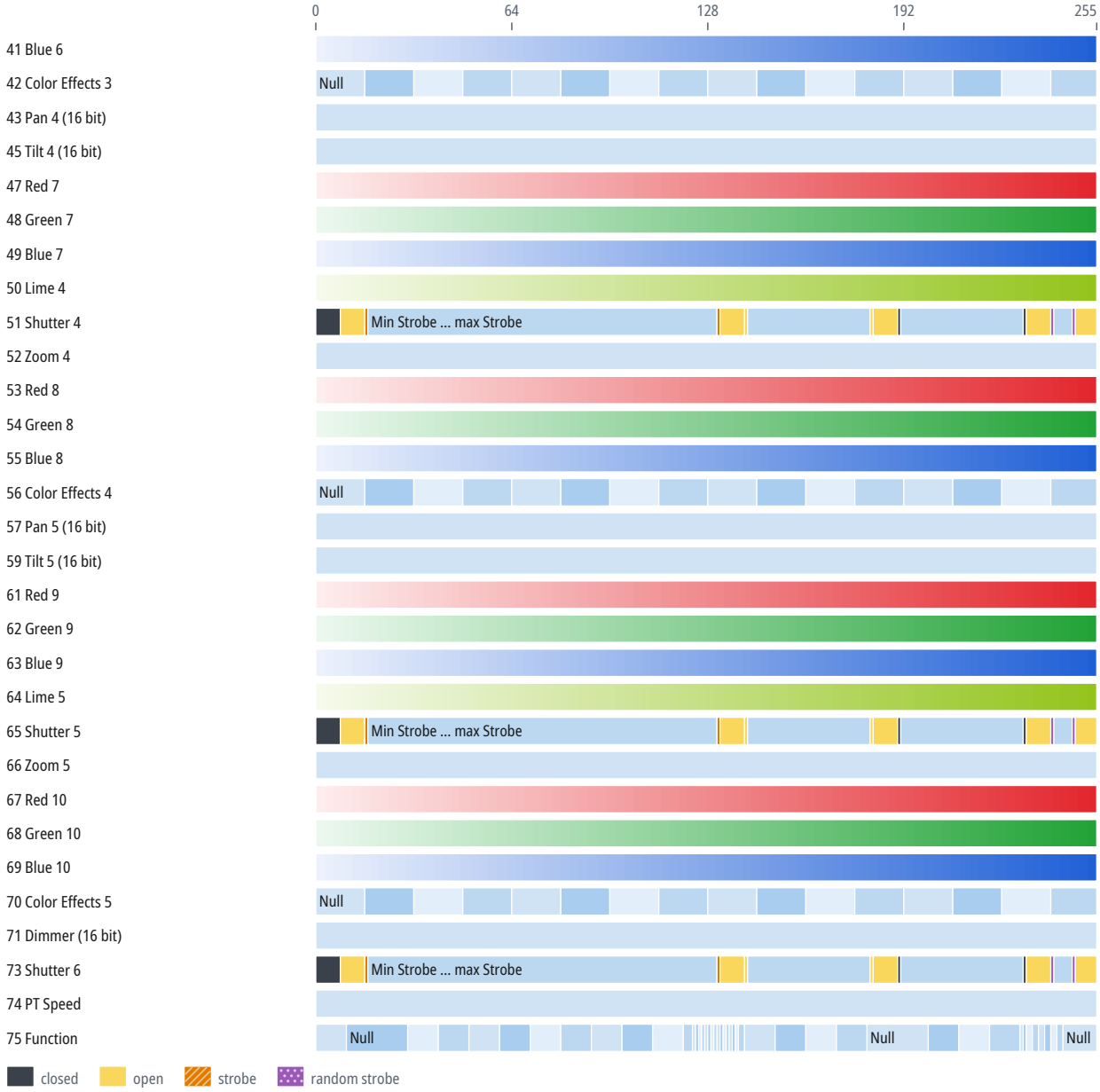
16-bit parameters use two channels, coarse and fine: value = 256 × coarse value + fine value.

If the device receives DMX in this mode but gives no light, check these channels: CH 9 Shutter 1 at 8–15 “Open” or 132–139 or 182–189 or 232–239 or 248–255; CH 23 Shutter 2 at 8–15 “Open” or 132–139 or 182–189 or 232–239 or 248–255; CH 37 Shutter 3 at 8–15 “Open” or 132–139 or 182–189 or 232–239 or 248–255; CH 51 Shutter 4 at 8–15 “Open” or 132–139 or 182–189 or 232–239 or 248–255; CH 65 Shutter 5 at 8–15 “Open” or 132–139 or 182–189 or 232–239 or 248–255; CH 71 Dimmer above 0; CH 73 Shutter 6 at 8–15 “Open” or 132–139 or 182–189 or 232–239 or 248–255. The GDTF file gives these values for a console's Highlight function: CH 5 Red 1 255, CH 6 Green 1 255, CH 7 Blue 1 255, CH 9 Shutter 1 255, CH 11 Red 2 255, CH 12 Green 2 255, CH 13 Blue 2 255, CH 19 Red 3 255, CH 20 Green 3 255, CH 21 Blue 3 255, CH 23 Shutter 2 255, CH 25 Red 4 255, CH 26 Green 4 255, CH 27 Blue 4 255, CH 33 Red 5 255, CH 34 Green 5 255, CH 35 Blue 5 255, CH 37 Shutter 3 255, CH 39 Red 6 255, CH 40 Green 6 255, CH 41 Blue 6 255, CH 47 Red 7 255, CH 48 Green 7 255, CH 49 Blue 7 255, CH 51 Shutter 4 255, CH 53 Red 8 255, CH 54 Green 8 255, CH 55 Blue 8 255, CH 61 Red 9 255, CH 62 Green 9 255, CH 63 Blue 9 255, CH 65 Shutter 5 255, CH 67 Red 10 255, CH 68 Green 10 255, CH 69 Blue 10 255, CH 71 Dimmer 255, CH 73 Shutter 6 255.

## Channel functions at a glance



## Channel functions at a glance




| CH | Function | DMX | Description |
|---|---|---|---|
| **1** | Pan 1 | 0–255 | 59° |
| **2** | Pan 1 Fine | 0–255 | Fine adjustment of CH 1 |
| **3** | Tilt 1 | 0–255 | 221° |
| **4** | Tilt 1 Fine | 0–255 | Fine adjustment of CH 3 |
| **5** | Red 1 | 0–255 | |
| **6** | Green 1 | 0–255 | |
| **7** | Blue 1 | 0–255 | |
| **8** | Lime 1 | 0–255 | |
| **9** | Shutter 1 | | Same as CH 38 in the mode “Mode 1 41DMX 1” (p. 14) |
| **10** | Zoom 1 | 0–255 | 35–3° |
| **11** | Red 2 | 0–255 | |

| CH | Function | DMX | Description |
|---|---|---|---|
| **12** | Green 2 | 0–255 | |
| **13** | Blue 2 | 0–255 | |
| **14** | Color Effects 1 | | Same as CH 13 in the mode “Mode 2 71 DMX” (p. 18) |
| **15** | Pan 2 | 0–255 | 59° |
| **16** | Pan 2 Fine | 0–255 | Fine adjustment of CH 15 |
| **17** | Tilt 2 | 0–255 | 221° |
| **18** | Tilt 2 Fine | 0–255 | Fine adjustment of CH 17 |
| **19** | Red 3 | 0–255 | |
| **20** | Green 3 | 0–255 | |
| **21** | Blue 3 | 0–255 | |
| **22** | Lime 2 | 0–255 | |
| **23** | Shutter 2 | | Same as CH 39 in the mode “Mode 1 41DMX 1” (p. 15) |
| **24** | Zoom 2 | 0–255 | 35–3° |
| **25** | Red 4 | 0–255 | |
| **26** | Green 4 | 0–255 | |
| **27** | Blue 4 | 0–255 | |
| **28** | Color Effects 2 | | Same as CH 26 in the mode “Mode 2 71 DMX” (p. 19) |
| **29** | Pan 3 | 0–255 | 59° |
| **30** | Pan 3 Fine | 0–255 | Fine adjustment of CH 29 |
| **31** | Tilt 3 | 0–255 | 221° |
| **32** | Tilt 3 Fine | 0–255 | Fine adjustment of CH 31 |
| **33** | Red 5 | 0–255 | |
| **34** | Green 5 | 0–255 | |
| **35** | Blue 5 | 0–255 | |
| **36** | Lime 3 | 0–255 | |
| **37** | Shutter 3 | 0–7 | Closed |
| | | 8–15 | Open |
| | | 16 | Min Strobe |
| | | 17–130 | Min Strobe ... max Strobe |
| | | 131 | Max Strobe |
| | | 132–139 | Open 2 |
| | | 140 | Min Pulse Open |
| | | 141–180 | Min Pulse Open ... max Pulse Open |
| | | 181 | Max Pulse Open |
| | | 182–189 | Open 3 |
| | | 190 | Min Pulse Close |
| | | 191–230 | Min Pulse Close ... max Pulse Close |
| | | 231 | Max Pulse Close |
| | | 232–239 | Open 4 |
| | | 240 | Min Strobe Rand |
| | | 241–246 | Min Strobe Rand ... max Strobe Rand |
| | | 247 | Max Strobe Rand |

| CH | Function | DMX | Description |
|---|---|---|---|
| **37** | Shutter 3 (continued) | 248–255 | Open 5 |
| **38** | Zoom 3 | 0–255 | 35–3° |
| **39** | Red 6 | 0–255 | |
| **40** | Green 6 | 0–255 | |
| **41** | Blue 6 | 0–255 | |
| **42** | Color Effects 3 | | Same as CH 39 in the mode “Mode 2 71 DMX” (p. 20) |
| **43** | Pan 4 | 0–255 | 59° |
| **44** | Pan 4 Fine | 0–255 | Fine adjustment of CH 43 |
| **45** | Tilt 4 | 0–255 | 221° |
| **46** | Tilt 4 Fine | 0–255 | Fine adjustment of CH 45 |
| **47** | Red 7 | 0–255 | |
| **48** | Green 7 | 0–255 | |
| **49** | Blue 7 | 0–255 | |
| **50** | Lime 4 | 0–255 | |
| **51** | Shutter 4 | 0–7 | Closed |
| | | 8–15 | Open |
| | | 16 | Min Strobe |
| | | 17–130 | Min Strobe ... max Strobe |
| | | 131 | Max Strobe |
| | | 132–139 | Open 2 |
| | | 140 | Min Pulse Open |
| | | 141–180 | Min Pulse Open ... max Pulse Open |
| | | 181 | Max Pulse Open |
| | | 182–189 | Open 3 |
| | | 190 | Min Pulse Close |
| | | 191–230 | Min Pulse Close ... max Pulse Close |
| | | 231 | Max Pulse Close |
| | | 232–239 | Open 4 |
| | | 240 | Min Strobe Rand |
| | | 241–246 | Min Strobe Rand ... max Strobe Rand |
| | | 247 | Max Strobe Rand |
| | | 248–255 | Open 5 |
| **52** | Zoom 4 | 0–255 | 35–3° |
| **53** | Red 8 | 0–255 | |
| **54** | Green 8 | 0–255 | |
| **55** | Blue 8 | 0–255 | |
| **56** | Color Effects 4 | | Same as CH 52 in the mode “Mode 2 71 DMX” (p. 20) |
| **57** | Pan 5 | 0–255 | 59° |
| **58** | Pan 5 Fine | 0–255 | Fine adjustment of CH 57 |
| **59** | Tilt 5 | 0–255 | 221° |
| **60** | Tilt 5 Fine | 0–255 | Fine adjustment of CH 59 |
| **61** | Red 9 | 0–255 | |

| CH | Function | DMX | Description |
|---|---|---|---|
| **62** | Green 9 | 0–255 | |
| **63** | Blue 9 | 0–255 | |
| **64** | Lime 5 | 0–255 | |
| **65** | Shutter 5 | 0–7 | Closed |
| | | 8–15 | Open |
| | | 16 | Min Strobe |
| | | 17–130 | Min Strobe ... max Strobe |
| | | 131 | Max Strobe |
| | | 132–139 | Open 2 |
| | | 140 | Min Pulse Open |
| | | 141–180 | Min Pulse Open ... max Pulse Open |
| | | 181 | Max Pulse Open |
| | | 182–189 | Open 3 |
| | | 190 | Min Pulse Close |
| | | 191–230 | Min Pulse Close ... max Pulse Close |
| | | 231 | Max Pulse Close |
| | | 232–239 | Open 4 |
| | | 240 | Min Strobe Rand |
| | | 241–246 | Min Strobe Rand ... max Strobe Rand |
| | | 247 | Max Strobe Rand |
| | | 248–255 | Open 5 |
| **66** | Zoom 5 | 0–255 | 35–3° |
| **67** | Red 10 | 0–255 | |
| **68** | Green 10 | 0–255 | |
| **69** | Blue 10 | 0–255 | |
| **70** | Color Effects 5 | | Same as CH 65 in the mode “Mode 2 71 DMX” (p. 21) |
| **71** | Dimmer | 0–255 | |
| **72** | Dimmer Fine | 0–255 | Fine adjustment of CH 71 |
| **73** | Shutter 6 | 0–7 | Closed |
| | | 8–15 | Open |
| | | 16 | Min Strobe |
| | | 17–130 | Min Strobe ... max Strobe |
| | | 131 | Max Strobe |
| | | 132–139 | Open 2 |
| | | 140 | Min Pulse Open |
| | | 141–180 | Min Pulse Open ... max Pulse Open |
| | | 181 | Max Pulse Open |
| | | 182–189 | Open 3 |
| | | 190 | Min Pulse Close |
| | | 191–230 | Min Pulse Close ... max Pulse Close |
| | | 231 | Max Pulse Close |
| | | 232–239 | Open 4 |

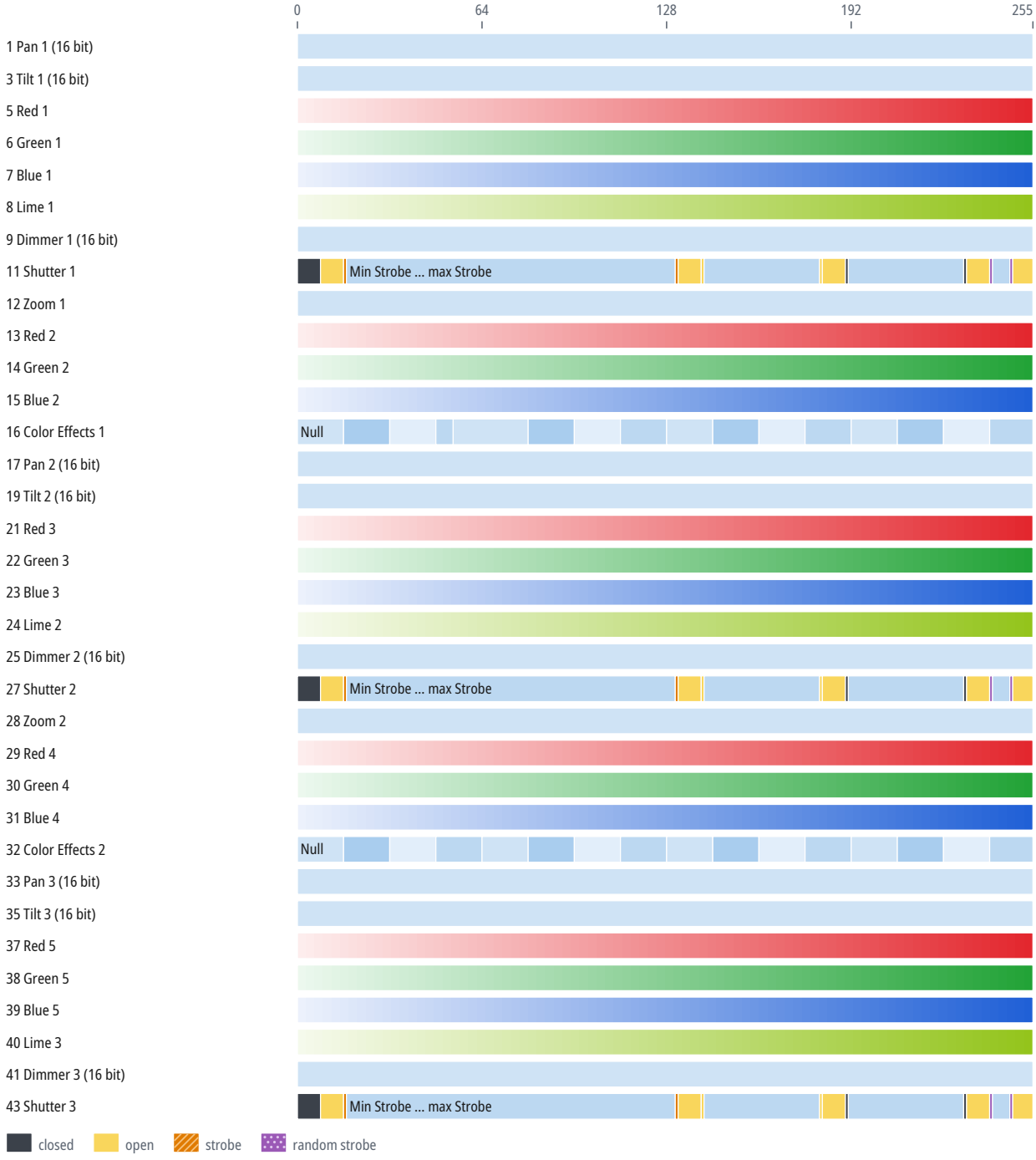
| CH | Function | DMX | Description |
|---|---|---|---|
| **73** | Shutter 6 (continued) | 240 | Min Strobe Rand |
| | | 241–246 | Min Strobe Rand ... max Strobe Rand |
| | | 247 | Max Strobe Rand |
| | | 248–255 | Open 5 |
| **74** | PT Speed | 0–255 | |
| **75** | Function | | Same as CH 71 in the mode “Mode 2 71 DMX” (p. 22) |

## Mode 4 85 MDX

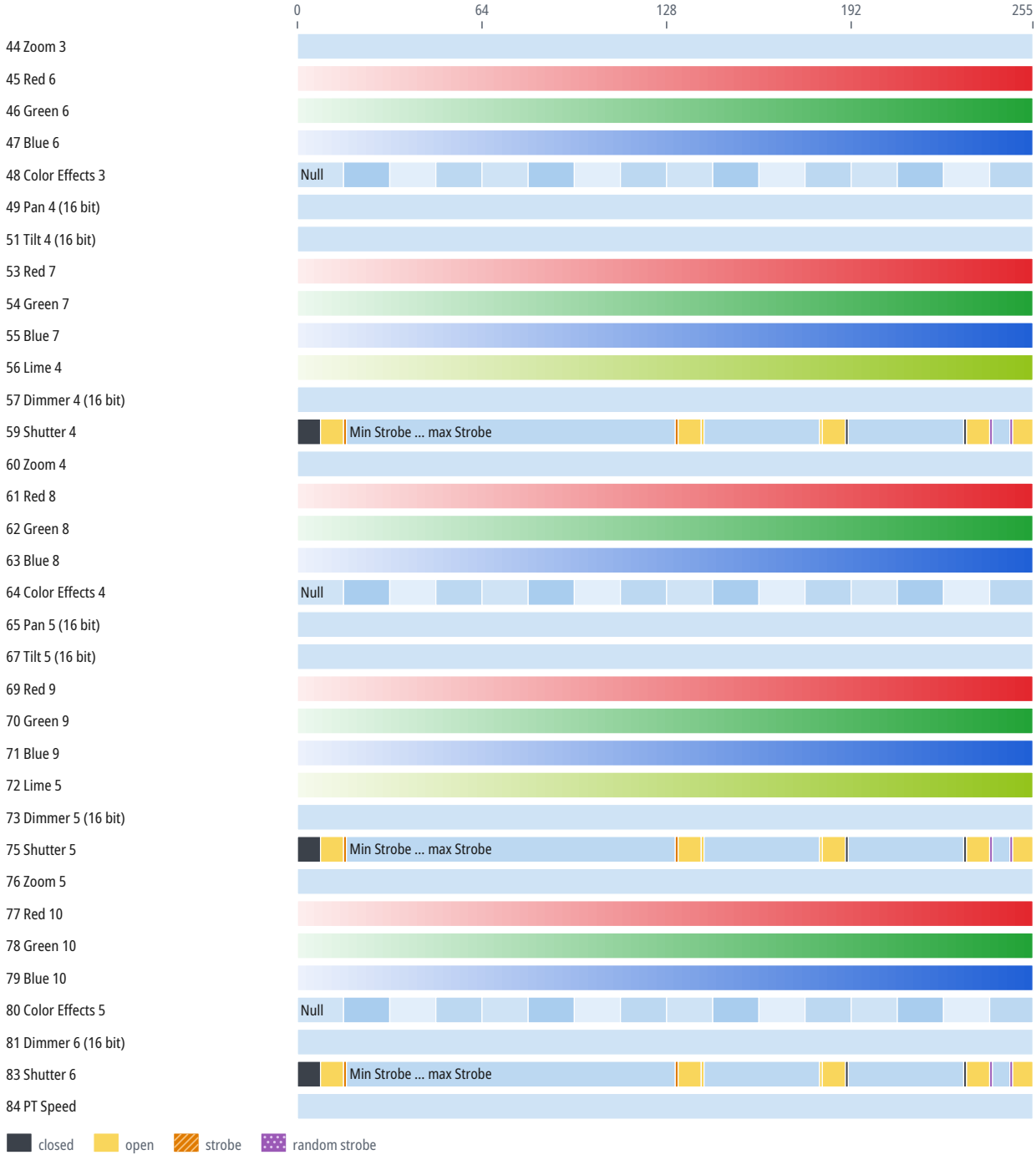
16-bit parameters use two channels, coarse and fine: value = 256 × coarse value + fine value.

If the device receives DMX in this mode but gives no light, check these channels: CH 9 Dimmer 1 above 0; CH 11 Shutter 1 at 8–15 “Open” or 132–139 or 182–189 or 232–239 or 248–255; CH 25 Dimmer 2 above 0; CH 27 Shutter 2 at 8–15 “Open” or 132–139 or 182–189 or 232–239 or 248–255; CH 41 Dimmer 3 above 0; CH 43 Shutter 3 at 8–15 “Open” or 132–139 or 182–189 or 232–239 or 248–255; CH 57 Dimmer 4 above 0; CH 59 Shutter 4 at 8–15 “Open” or 132–139 or 182–189 or 232–239 or 248–255; CH 73 Dimmer 5 above 0; CH 75 Shutter 5 at 8–15 “Open” or 132–139 or 182–189 or 232–239 or 248–255; CH 81 Dimmer 6 above 0; CH 83 Shutter 6 at 8–15 “Open” or 132–139 or 182–189 or 232–239 or 248–255. The GDTF file gives these values for a console's Highlight function: CH 5 Red 1 255, CH 6 Green 1 255, CH 7 Blue 1 255, CH 9 Dimmer 1 255, CH 11 Shutter 1 255, CH 13 Red 2 255, CH 14 Green 2 255, CH 15 Blue 2 255, CH 21 Red 3 255, CH 22 Green 3 255, CH 23 Blue 3 255, CH 25 Dimmer 2 255, CH 27 Shutter 2 255, CH 29 Red 4 255, CH 30 Green 4 255, CH 31 Blue 4 255, CH 37 Red 5 255, CH 38 Green 5 255, CH 39 Blue 5 255, CH 41 Dimmer 3 255, CH 43 Shutter 3 255, CH 45 Red 6 255, CH 46 Green 6 255, CH 47 Blue 6 255, CH 53 Red 7 255, CH 54 Green 7 255, CH 55 Blue 7 255, CH 57 Dimmer 4 255, CH 59 Shutter 4 255, CH 61 Red 8 255, CH 62 Green 8 255, CH 63 Blue 8 255, CH 69 Red 9 255, CH 70 Green 9 255, CH 71 Blue 9 255, CH 73 Dimmer 5 255, CH 75 Shutter 5 255, CH 77 Red 10 255, CH 78 Green 10 255, CH 79 Blue 10 255, CH 81 Dimmer 6 255, CH 83 Shutter 6 255.

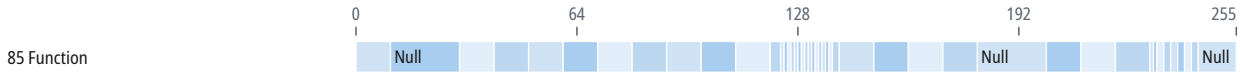
## Channel functions at a glance



## Channel functions at a glance




## Channel functions at a glance




| CH | Function | DMX | Description |
|---|---|---|---|
| **1** | Pan 1 | 0–255 | 59° |
| **2** | Pan 1 Fine | 0–255 | Fine adjustment of CH 1 |
| **3** | Tilt 1 | 0–255 | 221° |

| CH | Function | DMX | Description |
|---|---|---|---|
| **4** | Tilt 1 Fine | 0–255 | Fine adjustment of CH 3 |
| **5** | Red 1 | 0–255 | |
| **6** | Green 1 | 0–255 | |
| **7** | Blue 1 | 0–255 | |
| **8** | Lime 1 | 0–255 | |
| **9** | Dimmer 1 | 0–255 | |
| **10** | Dimmer 1 Fine | 0–255 | Fine adjustment of CH 9 |
| **11** | Shutter 1 | | Same as CH 38 in the mode “Mode 1 41DMX 1” (p. 14) |
| **12** | Zoom 1 | 0–255 | 35–3° |
| **13** | Red 2 | 0–255 | |
| **14** | Green 2 | 0–255 | |
| **15** | Blue 2 | 0–255 | |
| **16** | Color Effects 1 | | Same as CH 13 in the mode “Mode 2 71 DMX” (p. 18) |
| **17** | Pan 2 | 0–255 | 59° |
| **18** | Pan 2 Fine | 0–255 | Fine adjustment of CH 17 |
| **19** | Tilt 2 | 0–255 | 221° |
| **20** | Tilt 2 Fine | 0–255 | Fine adjustment of CH 19 |
| **21** | Red 3 | 0–255 | |
| **22** | Green 3 | 0–255 | |
| **23** | Blue 3 | 0–255 | |
| **24** | Lime 2 | 0–255 | |
| **25** | Dimmer 2 | 0–255 | |
| **26** | Dimmer 2 Fine | 0–255 | Fine adjustment of CH 25 |
| **27** | Shutter 2 | | Same as CH 39 in the mode “Mode 1 41DMX 1” (p. 15) |
| **28** | Zoom 2 | 0–255 | 35–3° |
| **29** | Red 4 | 0–255 | |
| **30** | Green 4 | 0–255 | |
| **31** | Blue 4 | 0–255 | |
| **32** | Color Effects 2 | | Same as CH 26 in the mode “Mode 2 71 DMX” (p. 19) |
| **33** | Pan 3 | 0–255 | 59° |
| **34** | Pan 3 Fine | 0–255 | Fine adjustment of CH 33 |
| **35** | Tilt 3 | 0–255 | 221° |
| **36** | Tilt 3 Fine | 0–255 | Fine adjustment of CH 35 |
| **37** | Red 5 | 0–255 | |
| **38** | Green 5 | 0–255 | |
| **39** | Blue 5 | 0–255 | |
| **40** | Lime 3 | 0–255 | |
| **41** | Dimmer 3 | 0–255 | |
| **42** | Dimmer 3 Fine | 0–255 | Fine adjustment of CH 41 |
| **43** | Shutter 3 | | Same as CH 37 in the mode “Mode 3 75 DMX” (p. 26) |
| **44** | Zoom 3 | 0–255 | 35–3° |
| **45** | Red 6 | 0–255 | |

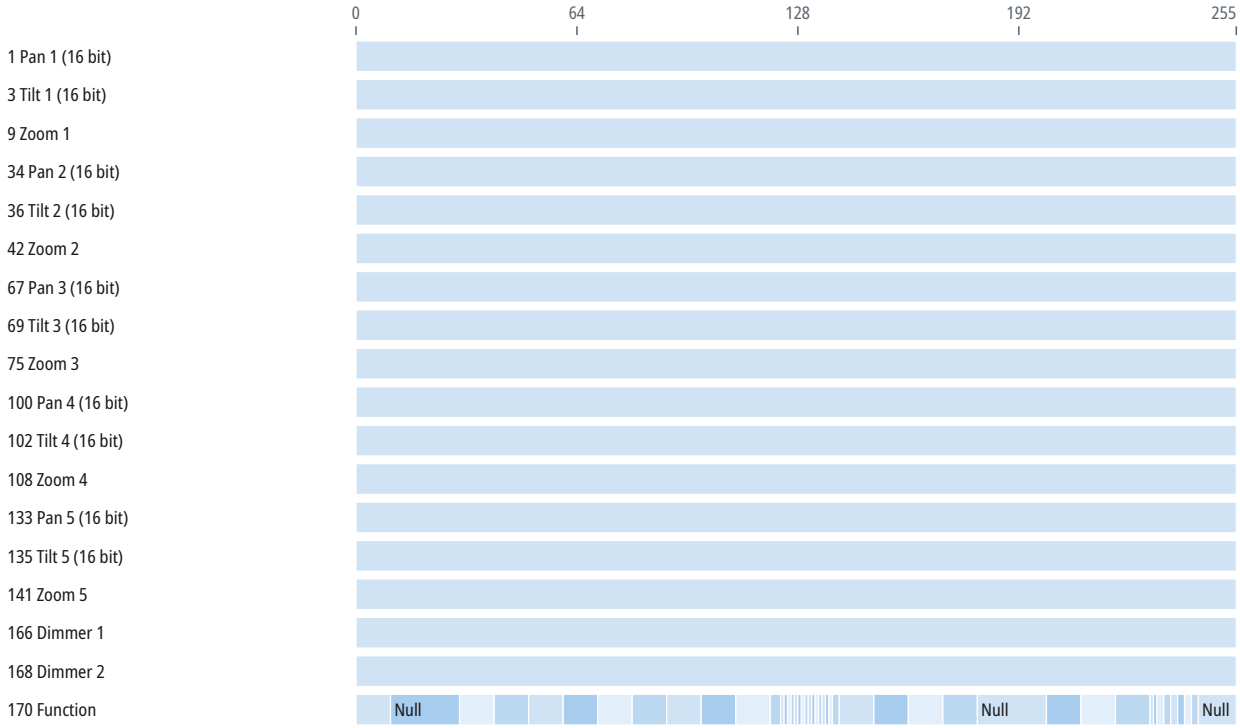
| CH | Function | DMX | Description |
|---|---|---|---|
| **46** | Green 6 | 0–255 | |
| **47** | Blue 6 | 0–255 | |
| **48** | Color Effects 3 | | Same as CH 39 in the mode “Mode 2 71 DMX” (p. 20) |
| **49** | Pan 4 | 0–255 | 59° |
| **50** | Pan 4 Fine | 0–255 | Fine adjustment of CH 49 |
| **51** | Tilt 4 | 0–255 | 221° |
| **52** | Tilt 4 Fine | 0–255 | Fine adjustment of CH 51 |
| **53** | Red 7 | 0–255 | |
| **54** | Green 7 | 0–255 | |
| **55** | Blue 7 | 0–255 | |
| **56** | Lime 4 | 0–255 | |
| **57** | Dimmer 4 | 0–255 | |
| **58** | Dimmer 4 Fine | 0–255 | Fine adjustment of CH 57 |
| **59** | Shutter 4 | | Same as CH 51 in the mode “Mode 3 75 DMX” (p. 27) |
| **60** | Zoom 4 | 0–255 | 35–3° |
| **61** | Red 8 | 0–255 | |
| **62** | Green 8 | 0–255 | |
| **63** | Blue 8 | 0–255 | |
| **64** | Color Effects 4 | | Same as CH 52 in the mode “Mode 2 71 DMX” (p. 20) |
| **65** | Pan 5 | 0–255 | 59° |
| **66** | Pan 5 Fine | 0–255 | Fine adjustment of CH 65 |
| **67** | Tilt 5 | 0–255 | 221° |
| **68** | Tilt 5 Fine | 0–255 | Fine adjustment of CH 67 |
| **69** | Red 9 | 0–255 | |
| **70** | Green 9 | 0–255 | |
| **71** | Blue 9 | 0–255 | |
| **72** | Lime 5 | 0–255 | |
| **73** | Dimmer 5 | 0–255 | |
| **74** | Dimmer 5 Fine | 0–255 | Fine adjustment of CH 73 |
| **75** | Shutter 5 | | Same as CH 65 in the mode “Mode 3 75 DMX” (p. 28) |
| **76** | Zoom 5 | 0–255 | 35–3° |
| **77** | Red 10 | 0–255 | |
| **78** | Green 10 | 0–255 | |
| **79** | Blue 10 | 0–255 | |
| **80** | Color Effects 5 | | Same as CH 65 in the mode “Mode 2 71 DMX” (p. 21) |
| **81** | Dimmer 6 | 0–255 | |
| **82** | Dimmer 6 Fine | 0–255 | Fine adjustment of CH 81 |
| **83** | Shutter 6 | | Same as CH 73 in the mode “Mode 3 75 DMX” (p. 28) |
| **84** | PT Speed | 0–255 | |
| **85** | Function | | Same as CH 71 in the mode “Mode 2 71 DMX” (p. 22) |

## Mode 5 170DMX

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 166 Dimmer 1 above 0; CH 168 Dimmer 2 above 0; CH 171 Shutter at 8–15 “Open” or 132–139 or 182–189 or 232–239 or 248–255 (the same in each of the 45 cells). The GDTF file gives these values for a console's Highlight function: CH 5 Red 1 255, CH 6 Green 1 255, CH 7 Blue 1 255, CH 10 Red 255 (the same in each of the 8 cells), CH 11 Green 255 (the same in each of the 8 cells), CH 12 Blue 255 (the same in each of the 8 cells), CH 38 Red 10 255, CH 39 Green 10 255, CH 40 Blue 10 255, CH 43 Red 255 (the same in each of the 8 cells), CH 44 Green 255 (the same in each of the 8 cells), CH 45 Blue 255 (the same in each of the 8 cells), CH 71 Red 19 255, CH 72 Green 19 255, CH 73 Blue 19 255, CH 76 Red 255 (the same in each of the 8 cells), CH 77 Green 255 (the same in each of the 8 cells), CH 78 Blue 255 (the same in each of the 8 cells), CH 104 Red 28 255, CH 105 Green 28 255, CH 106 Blue 28 255, CH 109 Red 255 (the same in each of the 8 cells), CH 110 Green 255 (the same in each of the 8 cells), CH 111 Blue 255 (the same in each of the 8 cells), CH 137 Red 37 255, CH 138 Green 37 255, CH 139 Blue 37 255, CH 142 Red 255 (the same in each of the 8 cells), CH 143 Green 255 (the same in each of the 8 cells), CH 144 Blue 255 (the same in each of the 8 cells), CH 166 Dimmer 1 255, CH 168 Dimmer 2 255, CH 171 Shutter 255 (the same in each of the 45 cells).

### Channel functions at a glance




| CH | Function | DMX | Description |
|---|---|---|---|
| **1** | Pan 1 | 0–255 | 59° |
| **2** | Pan 1 Fine | 0–255 | Fine adjustment of CH 1 |
| **3** | Tilt 1 | 0–255 | 221° |
| **4** | Tilt 1 Fine | 0–255 | Fine adjustment of CH 3 |
| **5** | Red 1 | 0–255 | |
| **6** | Green 1 | 0–255 | |
| **7** | Blue 1 | 0–255 | |

| CH | Function | DMX | Description |
|---|---|---|---|
| **8** | Lime 1 | 0–255 | |
| **9** | Zoom 1 | 0–255 | 35–3° |
| **10** | Red 2 | 0–255 | |
| **11** | Green 2 | 0–255 | |
| **12** | Blue 2 | 0–255 | |
| **34** | Pan 2 | 0–255 | 59° |
| **35** | Pan 2 Fine | 0–255 | Fine adjustment of CH 34 |
| **36** | Tilt 2 | 0–255 | 221° |
| **37** | Tilt 2 Fine | 0–255 | Fine adjustment of CH 36 |
| **38** | Red 10 | 0–255 | |
| **39** | Green 10 | 0–255 | |
| **40** | Blue 10 | 0–255 | |
| **41** | Lime 2 | 0–255 | |
| **42** | Zoom 2 | 0–255 | 35–3° |
| **43** | Red 11 | 0–255 | |
| **44** | Green 11 | 0–255 | |
| **45** | Blue 11 | 0–255 | |
| **67** | Pan 3 | 0–255 | 59° |
| **68** | Pan 3 Fine | 0–255 | Fine adjustment of CH 67 |
| **69** | Tilt 3 | 0–255 | 221° |
| **70** | Tilt 3 Fine | 0–255 | Fine adjustment of CH 69 |
| **71** | Red 19 | 0–255 | |
| **72** | Green 19 | 0–255 | |
| **73** | Blue 19 | 0–255 | |
| **74** | Lime 3 | 0–255 | |
| **75** | Zoom 3 | 0–255 | 35–3° |
| **76** | Red 20 | 0–255 | |
| **77** | Green 20 | 0–255 | |
| **78** | Blue 20 | 0–255 | |
| **100** | Pan 4 | 0–255 | 59° |
| **101** | Pan 4 Fine | 0–255 | Fine adjustment of CH 100 |
| **102** | Tilt 4 | 0–255 | 221° |
| **103** | Tilt 4 Fine | 0–255 | Fine adjustment of CH 102 |
| **104** | Red 28 | 0–255 | |
| **105** | Green 28 | 0–255 | |
| **106** | Blue 28 | 0–255 | |
| **107** | Lime 4 | 0–255 | |
| **108** | Zoom 4 | 0–255 | 35–3° |
| **109** | Red 29 | 0–255 | |
| **110** | Green 29 | 0–255 | |
| **111** | Blue 29 | 0–255 | |
| **133** | Pan 5 | 0–255 | 59° |

| CH | Function | DMX | Description |
|---|---|---|---|
| **134** | Pan 5 Fine | 0–255 | Fine adjustment of CH 133 |
| **135** | Tilt 5 | 0–255 | 221° |
| **136** | Tilt 5 Fine | 0–255 | Fine adjustment of CH 135 |
| **137** | Red 37 | 0–255 | |
| **138** | Green 37 | 0–255 | |
| **139** | Blue 37 | 0–255 | |
| **140** | Lime 5 | 0–255 | |
| **141** | Zoom 5 | 0–255 | 35–3° |
| **142** | Red 38 | 0–255 | |
| **143** | Green 38 | 0–255 | |
| **144** | Blue 38 | 0–255 | |
| **166** | Dimmer 1 | 0–255 | |
| **168** | Dimmer 2 | 0–255 | |
| **170** | Function | | Same as CH 71 in the mode “Mode 2 71 DMX” (p. 22) |
| **171** | Shutter 2 1 | 0–7 | Closed |
| | | 8–15 | Open |
| | | 16 | Min Strobe |
| | | 17–130 | Min Strobe ... max Strobe |
| | | 131 | Max Strobe |
| | | 132–139 | Open 2 |
| | | 140 | Min Pulse Open |
| | | 141–180 | Min Pulse Open ... max Pulse Open |
| | | 181 | Max Pulse Open |
| | | 182–189 | Open 3 |
| | | 190 | Min Pulse Close |
| | | 191–230 | Min Pulse Close ... max Pulse Close |
| | | 231 | Max Pulse Close |
| | | 232–239 | Open 4 |
| | | 240 | Min Strobe Rand |
| | | 241–246 | Min Strobe Rand ... max Strobe Rand |
| | | 247 | Max Strobe Rand |
| | | 248–255 | Open 5 |

CH 10–33: 8 cells of 3 channels each. Every cell works as cell 1 in the table above (CH 10–12); the table below gives each cell's channel numbers.

| Cell | Red | Green | Blue | Cell | Red | Green | Blue | Cell | Red | Green | Blue |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 10 | 11 | 12 | 2 | 13 | 14 | 15 | 3 | 16 | 17 | 18 |
| 4 | 19 | 20 | 21 | 5 | 22 | 23 | 24 | 6 | 25 | 26 | 27 |
| 7 | 28 | 29 | 30 | 8 | 31 | 32 | 33 | | | | |

CH 43–66: 8 cells of 3 channels each. Every cell works as cell 1 in the table above (CH 43–45); the table below gives each cell's channel numbers.

| Cell | Red | Green | Blue | Cell | Red | Green | Blue | Cell | Red | Green | Blue |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 43 | 44 | 45 | 2 | 46 | 47 | 48 | 3 | 49 | 50 | 51 |
| 4 | 52 | 53 | 54 | 5 | 55 | 56 | 57 | 6 | 58 | 59 | 60 |
| 7 | 61 | 62 | 63 | 8 | 64 | 65 | 66 | | | | |

CH 76–99: 8 cells of 3 channels each. Every cell works as cell 1 in the table above (CH 76–78); the table below gives each cell's channel numbers.

| Cell | Red | Green | Blue | Cell | Red | Green | Blue | Cell | Red | Green | Blue |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 76 | 77 | 78 | 2 | 79 | 80 | 81 | 3 | 82 | 83 | 84 |
| 4 | 85 | 86 | 87 | 5 | 88 | 89 | 90 | 6 | 91 | 92 | 93 |
| 7 | 94 | 95 | 96 | 8 | 97 | 98 | 99 | | | | |

CH 109–132: 8 cells of 3 channels each. Every cell works as cell 1 in the table above (CH 109–111); the table below gives each cell's channel numbers.

| Cell | Red | Green | Blue | Cell | Red | Green | Blue | Cell | Red | Green | Blue |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 109 | 110 | 111 | 2 | 112 | 113 | 114 | 3 | 115 | 116 | 117 |
| 4 | 118 | 119 | 120 | 5 | 121 | 122 | 123 | 6 | 124 | 125 | 126 |
| 7 | 127 | 128 | 129 | 8 | 130 | 131 | 132 | | | | |

CH 142–165: 8 cells of 3 channels each. Every cell works as cell 1 in the table above (CH 142–144); the table below gives each cell's channel numbers.

| Cell | Red | Green | Blue | Cell | Red | Green | Blue | Cell | Red | Green | Blue |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 142 | 143 | 144 | 2 | 145 | 146 | 147 | 3 | 148 | 149 | 150 |
| 4 | 151 | 152 | 153 | 5 | 154 | 155 | 156 | 6 | 157 | 158 | 159 |
| 7 | 160 | 161 | 162 | 8 | 163 | 164 | 165 | | | | |

CH 171–331: 45 cells of 1 channel each. Every cell works as cell 1 in the table above (CH 171); the table below gives each cell's channel numbers.

| Cell | Shutter | Cell | Shutter | Cell | Shutter | Cell | Shutter | Cell | Shutter | Cell | Shutter |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 171 | 2 | 178 | 3 | 181 | 4 | 184 | 5 | 187 | 6 | 190 |
| 7 | 193 | 8 | 196 | 9 | 199 | 10 | 204 | 11 | 211 | 12 | 214 |
| 13 | 217 | 14 | 220 | 15 | 223 | 16 | 226 | 17 | 229 | 18 | 232 |
| 19 | 237 | 20 | 244 | 21 | 247 | 22 | 250 | 23 | 253 | 24 | 256 |
| 25 | 259 | 26 | 262 | 27 | 265 | 28 | 270 | 29 | 277 | 30 | 280 |
| 31 | 283 | 32 | 286 | 33 | 289 | 34 | 292 | 35 | 295 | 36 | 298 |
| 37 | 303 | 38 | 310 | 39 | 313 | 40 | 316 | 41 | 319 | 42 | 322 |
| 43 | 325 | 44 | 328 | 45 | 331 | | | | | | |

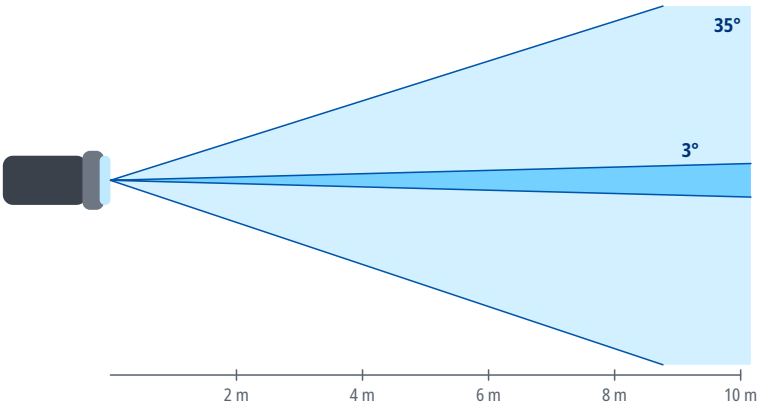
# 10 Technical specifications

| Parameter | Value |
|---|---|
| Light source | LED |
| Zoom | 3–35° |
| Pan | 59° |
| Tilt | 221° |
| Weight | 29 kg |
| Operating temperature | -10 to 40 °C |

### Speeds and ranges

| Parameter | Value |
|---|---|
| Color temperature range | 2500–8000 K |
| Strobe frequency | 0.9–20 Hz |

### Spot diameter




| Distance | Ø 3° | Ø 35° |
|---|---|---|
| 2 m | 0.1 m | 1.3 m |
| 4 m | 0.21 m | 2.5 m |
| 6 m | 0.31 m | 3.8 m |
| 8 m | 0.42 m | 5 m |
| 10 m | 0.52 m | 6.3 m |
| 15 m | 0.79 m | 9.5 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.