DMX REFERENCE

Aperta

Starway



Manufacturer	Starway
GDTF file	Starway_Aperta_103258.gdtf
GDTF revision	V107B · 2025-07-09
Generated	2026-11-24

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1 About this manual

This document describes the Aperta by Starway. It was compiled from the GDTF file Starway_Aperta_103258.gdtf from the GDTF-Share library.

File revision: “V107B”.

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 Starway; 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	13.1 kg

DMX modes

Mode	Channels	Units in one universe	First start addresses
Extended 25CH	25	20	1, 26, 51, 76, ...
Standard 22CH	22	23	1, 23, 45, 67, ...
Basic 19CH	19	26	1, 20, 39, 58, ...

No light? Check these channels

- Extended 25CH: CH 18 Shutter at 32–63 “open” or 96–127 or 160–191 or 224–255; CH 19 Dimmer above 0
- Standard 22CH: CH 15 Shutter at 32–63 “open” or 96–127 or 160–191 or 224–255; CH 16 Dimmer above 0
- Basic 19CH: CH 13 Shutter at 32–63 “open” or 96–127 or 160–191 or 224–255; CH 14 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.

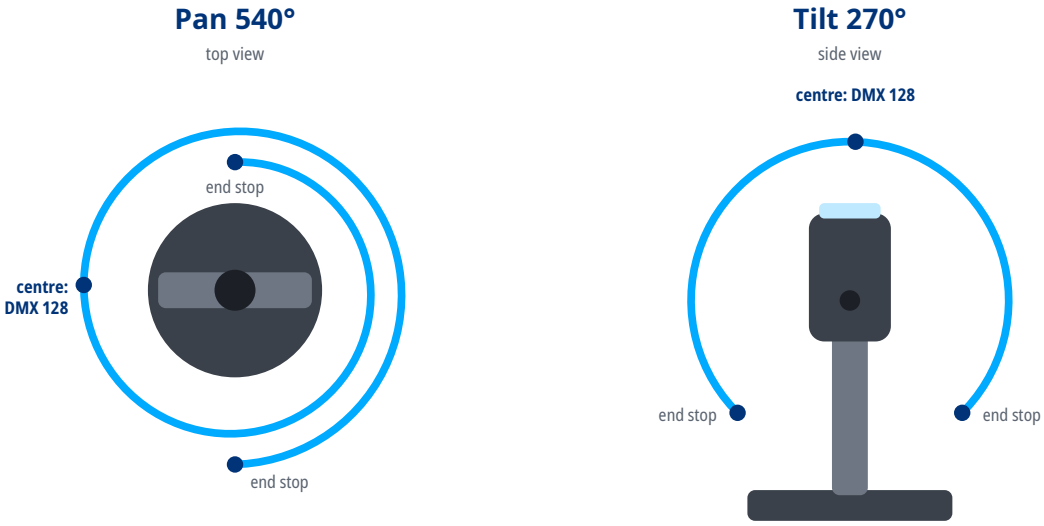
⚠ CAUTION

- 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



5 Installation

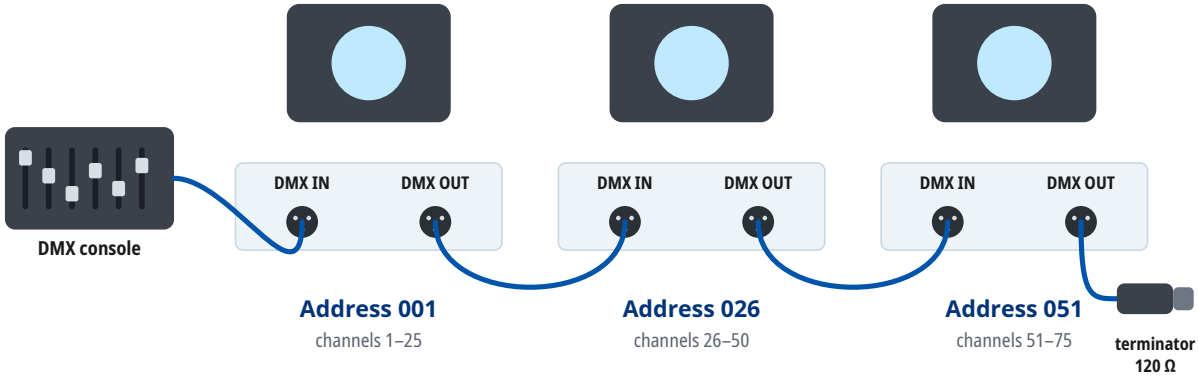
> ⚠ **WARNING**
>
> - Rigging must be carried out only by qualified persons in accordance with applicable regulations, in particular those for work at height.
> - The supporting structure and fixings must safely carry the weight of all suspended devices; verify their load capacity in advance.
> - Weight of the device: 13.1 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 Extended 25CH: every unit occupies 25 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

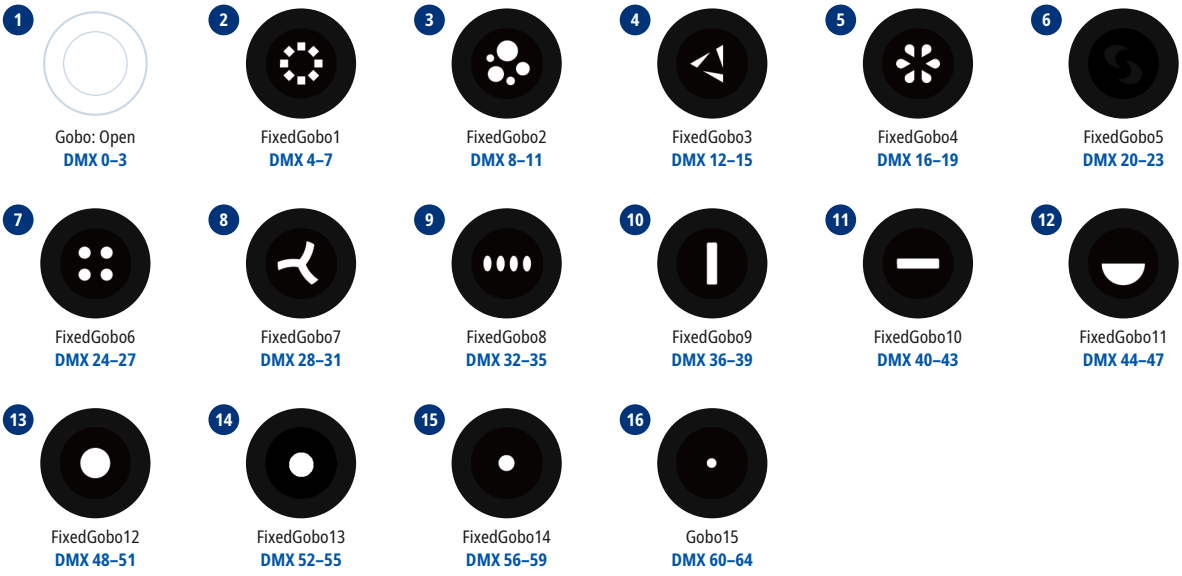
- The device occupies as many consecutive channels in the DMX universe as the selected DMX mode uses, starting at the set start address.
- Number of channels occupied in the DMX mode “Extended 25CH”: 25.
- Choose start addresses so that the channels of individual devices do not overlap and the last occupied 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 25CH”, you can use, for example, the start addresses 1, 26, 51, 76.
- 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

	Extended 25CH 25 channels	Standard 22CH 22 channels	Basic 19CH 19 channels
Pan / Tilt	1, 3, 5, 6	1, 3, 5, 6	1–4
Pan / Tilt resolution	16 bit	16 bit	8 bit
Dimmer	19	16	14
Dimmer resolution	16 bit	16 bit	8 bit
Shutter / strobe	18	15	13
Color mixing	7, 9, 11	7–9	5–7
Gobo wheel	13	10	8
Prism	14–17	11–14	9–12
Frost	22	19	16
Focus	21	18	15

Gobo wheel



1 Gobo: Open
DMX 0–3

2 FixedGobo1
DMX 4–7

3 FixedGobo2
DMX 8–11

4 FixedGobo3
DMX 12–15

5 FixedGobo4
DMX 16–19

6 FixedGobo5
DMX 20–23

7 FixedGobo6
DMX 24–27

8 FixedGobo7
DMX 28–31

9 FixedGobo8
DMX 32–35

10 FixedGobo9
DMX 36–39

11 FixedGobo10
DMX 40–43

12 FixedGobo11
DMX 44–47

13 FixedGobo12
DMX 48–51

14 FixedGobo13
DMX 52–55

15 FixedGobo14
DMX 56–59

16 Gobo15
DMX 60–64

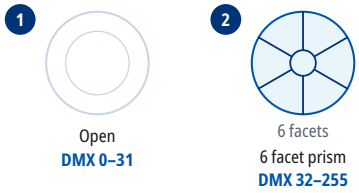
Prism 1



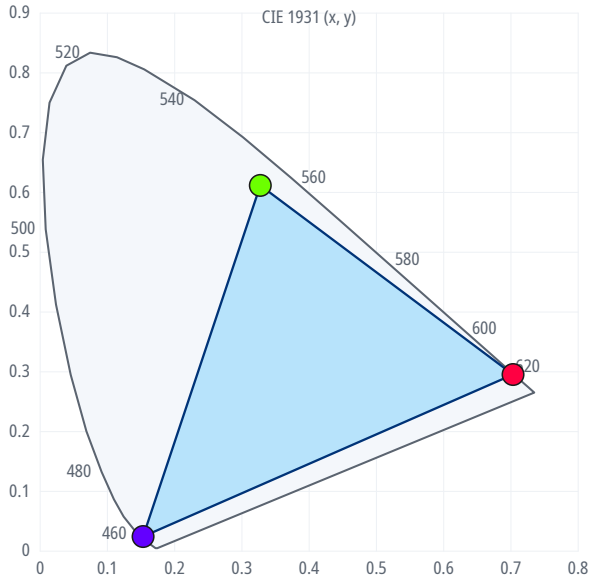
1 Open
DMX 0–31

2 8 facets
8 facet prism
DMX 32–255

Prism 2



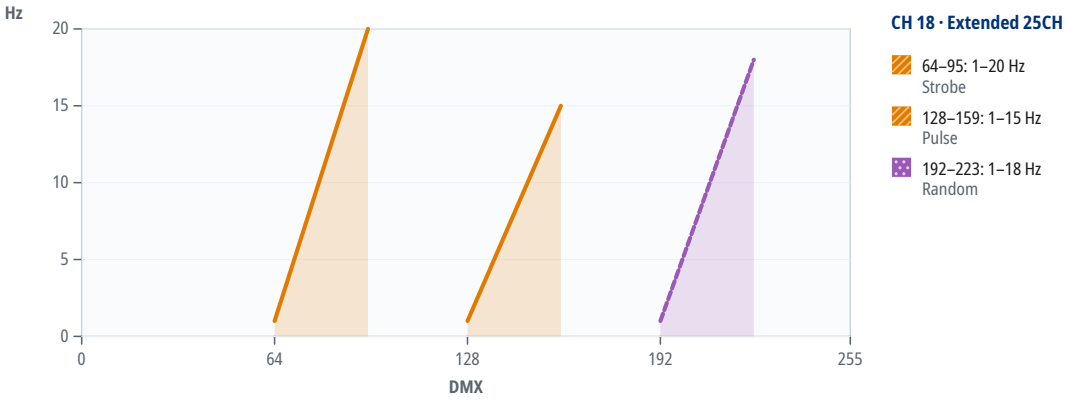
LED colors and the colors they mix



LED	x	y
Red	0.703	0.295
Green	0.327	0.612
Blue	0.153	0.025

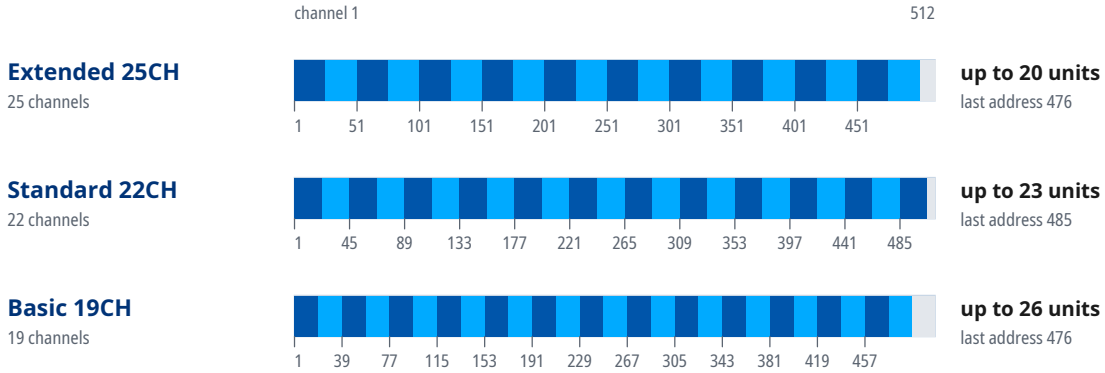
The shaded area holds the colors the LEDs can mix; the dots are the LED colors the GDTF file states.

Strobe rate



9 DMX channels

Units in one DMX universe



Start addresses of 20 units in the mode “Extended 25CH”

Unit	Start address	Unit	Start address	Unit	Start address	Unit	Start address
1	1	6	126	11	251	16	376
2	26	7	151	12	276	17	401
3	51	8	176	13	301	18	426
4	76	9	201	14	326	19	451
5	101	10	226	15	351	20	476

Mode Extended 25CH

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 18 Shutter at 32–63 “open” or 96–127 or 160–191 or 224–255; CH 19 Dimmer above 0. The GDTF file gives these values for a console's Highlight function: CH 19 Dimmer 255.

Channel functions at a glance



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	Pan Rotation	0–127	No function
		128–189	Pan clockwise from fast to slow (1–0.3 °/s)
		190–193	No rotation
		194–255	Pan counter-clockwise from slow to fast (0.3–1 °/s)
6	Tilt Rotation	0–127	No function
		128–189	Titl clockwise from fast to slow (1–0.3 °/s)
		190–193	No rotation

CH	Function	DMX	Description
6	Tilt Rotation (continued)	194–255	Titl counter-clockwise from slow to fast (0.3–1 °/s)
7	Red	0–255	
8	Red Fine	0–255	Fine adjustment of CH 7
9	Green	0–255	
10	Green Fine	0–255	Fine adjustment of CH 9
11	Blue	0–255	
12	Blue Fine	0–255	Fine adjustment of CH 11
13	Gobo	0–3	Gobo: Open
		4–7	FixedGobo1
		8–11	FixedGobo2
		12–15	FixedGobo3
		16–19	FixedGobo4
		20–23	FixedGobo5
		24–27	FixedGobo6
		28–31	FixedGobo7
		32–35	FixedGobo8
		36–39	FixedGobo9
		40–43	FixedGobo10
		44–47	FixedGobo11
		48–51	FixedGobo12
		52–55	FixedGobo13
		56–59	FixedGobo14
		60–63	FixedGobo15
		64–73	FixedGobo 1 shake (0.1–1 Hz)
		74–83	FixedGobo 2 shake (0.1–1 Hz)
		84–93	FixedGobo 3 shake (0.1–1 Hz)
		94–103	FixedGobo 4 shake (0.1–1 Hz)
		104–113	FixedGobo 5 shake (0.1–1 Hz)
		114–123	FixedGobo 6 shake (0.1–1 Hz)
		124–133	FixedGobo 7 shake (0.1–1 Hz)
		134–143	FixedGobo 8 shake (0.1–1 Hz)
		144–153	FixedGobo 9 shake (0.1–1 Hz)
		154–163	FixedGobo 10 shake (0.1–1 Hz)
		164–173	FixedGobo 11 shake (0.1–1 Hz)
		174–183	FixedGobo 12 shake (0.1–1 Hz)
		184–193	FixedGobo 13 shake (0.1–1 Hz)
		194–203	FixedGobo 14 shake (0.1–1 Hz)
		204–211	FixedGobo 15 shake (0.1–1 Hz)
		212–232	Clockwise from slow to fast (180–12.6 °/s)
		233–234	No rotation
		235–255	Counter-clockwise from slow to fast (12.6–180 °/s)
14	Prism	0–31	Open

CH	Function	DMX	Description
14	Prism (continued)	32–255	8 facet prism
15	Prism Rotation	0–127	Indexing
		128–189	Forwards prism1 rotation from fast to slow (180–7.09 °/s)
		190–193	No rotation
		194–255	Backwards prism1 rotation from slow to fast (7.09–180 °/s)
16	Prism 2	0–31	Open
		32–255	6 facet prism
17	Prism 2 Rotation	0–127	Indexing
		128–189	Forwards prism2 rotation from fast to slow (180–7.09 °/s)
		190–193	No rotation
		194–255	Backwards prism2 rotation from slow to fast (7.09–180 °/s)
18	Shutter	0–31	Shutter: closed
		32–63	Shutter: open
		64	Min strobe
		65–94	Min strobe ... max strobe
		95	Max strobe
		96–127	Shutter open(2)
		128	Min pulse
		129–158	Min pulse ... max pulse
		159	Max pulse
		160–191	Shutter open(3)
		192	Min Random
		193–222	Min Random ... max Random
		223	Max Random
		224–255	Shutter open(4)
19	Dimmer	0–255	Closed ... open
		255	Open
20	Dimmer Fine	0–255	Fine adjustment of CH 19
21	Focus	0–255	
22	Frost	0–225	0 -100%(Linear)
		226–235	Pulse opening effect from fast to slow
		236–245	Pulse closing effect from slow to fast
		246–255	Frost at 100%
23	Dimmer Mode	0–20	Dim 0
		21–40	Dim 1
		41–60	Dim 2
		61–80	Dim 3
		81–100	Dim 4
		101–255	Default to Unit Setting
24	Speed Pan/Tilt	0–225	Max to min speed
		226–235	Blackout by movement
		236–255	No function

CH	Function	DMX	Description
25	Control	0	Save RGB calibration data
		1–19	No function
		20–29	Fan Speed Set Auto
		30–39	Fan Speed Set High
		40–49	Fan Speed Set Low
		50–59	Quick path P/T Off
		60–69	Quick path P/T On
		70–79	Pan Tilt Reset
		80–89	All Motors Reset
		90–98	No function
		99	Restore the default calibration Before or After 2022-8-23(Hold 10s))
		100–119	Internal program 1
		120–139	Internal program 2
		140–159	Internal program 3
		160–179	Internal program 4
		180–199	Internal program 5
		200–219	Internal program 6
		220–239	Internal program 7
		240–245	Before 2022-8-23(Hold 10s)
		246–250	After 2022-8-23(Hold 10s)
		251–255	Adjust calibration before or after(Hold 10s)

Mode Standard 22CH

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 15 Shutter at 32–63 “open” or 96–127 or 160–191 or 224–255; CH 16 Dimmer above 0. The GDTF file gives these values for a console's Highlight function: CH 16 Dimmer 255.

Channel functions at a glance



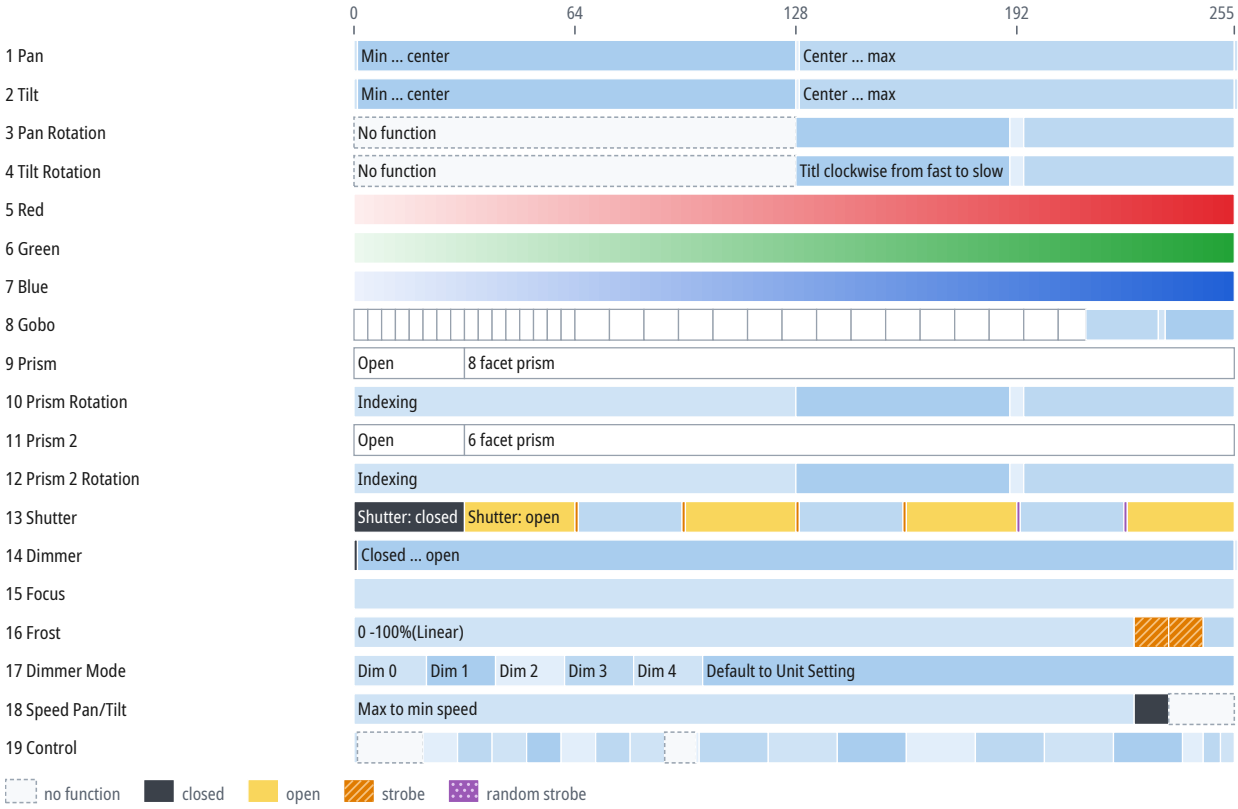
CH	Function	DMX	Description
1	Pan		Same as CH 1 in the mode “Extended 25CH” (p. 10)
2	Pan Fine	0–255	Fine adjustment of CH 1
3	Tilt		Same as CH 3 in the mode “Extended 25CH” (p. 10)
4	Tilt Fine	0–255	Fine adjustment of CH 3
5	Pan Rotation		Same as CH 5 in the mode “Extended 25CH” (p. 10)
6	Tilt Rotation		Same as CH 6 in the mode “Extended 25CH” (p. 10)
7	Red	0–255	
8	Green	0–255	
9	Blue	0–255	
10	Gobo		Same as CH 13 in the mode “Extended 25CH” (p. 11)
11	Prism		Same as CH 14 in the mode “Extended 25CH” (p. 11)
12	Prism Rotation		Same as CH 15 in the mode “Extended 25CH” (p. 12)
13	Prism 2		Same as CH 16 in the mode “Extended 25CH” (p. 12)
14	Prism 2 Rotation		Same as CH 17 in the mode “Extended 25CH” (p. 12)
15	Shutter		Same as CH 18 in the mode “Extended 25CH” (p. 12)

CH	Function	DMX	Description
16	Dimmer		Same as CH 19 in the mode “Extended 25CH” (p. 12)
17	Dimmer Fine	0–255	Fine adjustment of CH 16
18	Focus	0–255	
19	Frost		Same as CH 22 in the mode “Extended 25CH” (p. 12)
20	Dimmer Mode		Same as CH 23 in the mode “Extended 25CH” (p. 12)
21	Speed Pan/Tilt		Same as CH 24 in the mode “Extended 25CH” (p. 12)
22	Control		Same as CH 25 in the mode “Extended 25CH” (p. 13)

Mode Basic 19CH

If the device receives DMX in this mode but gives no light, check these channels: CH 13 Shutter at 32–63 “open” or 96–127 or 160–191 or 224–255; CH 14 Dimmer above 0. The GDTF file gives these values for a console's Highlight function: CH 14 Dimmer 255.

Channel functions at a glance



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

CH	Function	DMX	Description
2	Tilt (continued)	129–254	Center … max
		255	Max
3	Pan Rotation		Same as CH 5 in the mode “Extended 25CH” (p. 10)
4	Tilt Rotation		Same as CH 6 in the mode “Extended 25CH” (p. 10)
5	Red	0–255	
6	Green	0–255	
7	Blue	0–255	
8	Gobo		Same as CH 13 in the mode “Extended 25CH” (p. 11)
9	Prism		Same as CH 14 in the mode “Extended 25CH” (p. 11)
10	Prism Rotation		Same as CH 15 in the mode “Extended 25CH” (p. 12)
11	Prism 2		Same as CH 16 in the mode “Extended 25CH” (p. 12)
12	Prism 2 Rotation		Same as CH 17 in the mode “Extended 25CH” (p. 12)
13	Shutter		Same as CH 18 in the mode “Extended 25CH” (p. 12)
14	Dimmer	0	Closed
		1–254	Closed … open
		255	Open
15	Focus	0–255	
16	Frost		Same as CH 22 in the mode “Extended 25CH” (p. 12)
17	Dimmer Mode		Same as CH 23 in the mode “Extended 25CH” (p. 12)
18	Speed Pan/Tilt		Same as CH 24 in the mode “Extended 25CH” (p. 12)
19	Control		Same as CH 25 in the mode “Extended 25CH” (p. 13)

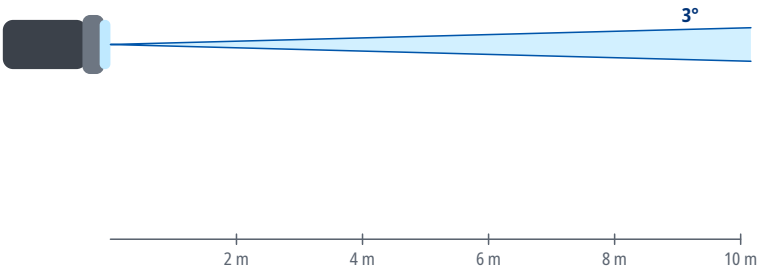
10 Technical specifications

Parameter	Value
Light	
Light source	LED
LED power	50 W
Luminous flux	1,770 lm
Color temperature	16,800 K
Color rendering index (CRI)	81
Optics	
Beam angle	3°
Movement	
Pan	540°
Tilt	270°
Control	
DMX connection	5-pin XLR IN/OUT
RJ45 connectors	RJ45 IN
RDM	yes (manufacturer ID 0x09E9, device model ID 0x4489)
Electrical	
Power connectors	powerCON TRUE1 IN
Dimensions and construction	
Weight	13.1 kg
Operating environment	
Operating temperature	-20 to 45 °C

Speeds and ranges

Parameter	Value
Strobe frequency	1–20 Hz
Gobo wheel rotation	up to 180 °/s (30 rpm)
Prism 1 rotation	up to 180 °/s (30 rpm)
Prism 2 rotation	up to 180 °/s (30 rpm)

Spot diameter



Distance	Ø 3°
2 m	0.1 m
4 m	0.21 m
6 m	0.31 m
8 m	0.42 m
10 m	0.52 m
15 m	0.79 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.