DMX REFERENCE

VH20

CKC Lighting



Manufacturer	CKC Lighting
GDTF file	CKC_Lighting_VH20_115567.gdtf
GDTF revision	Revision 1 · 2025-10-29
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1 About this manual

This document describes the VH20 by CKC Lighting. It was compiled from the GDTF file CKC_Lighting_VH20_115567.gdtf from the GDTF-Share library.

File revision: “Revision 1”.

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 CKC Lighting; 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	26 kg

DMX modes

Mode	Channels	Units in one universe	First start addresses
Standard 27CH	27	18	1, 28, 55, 82, ...
Extended 32CH	32	16	1, 33, 65, 97, ...

No light? Check these channels

- Standard 27CH: CH 5 Dimmer above 0; CH 7 Shutter at 32–63 “open” or 96–127 or 160–191 or 224–255
- Extended 32CH: CH 5 Dimmer above 0; CH 7 Shutter at 32–63 “open” or 96–127 or 160–191 or 224–255


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.

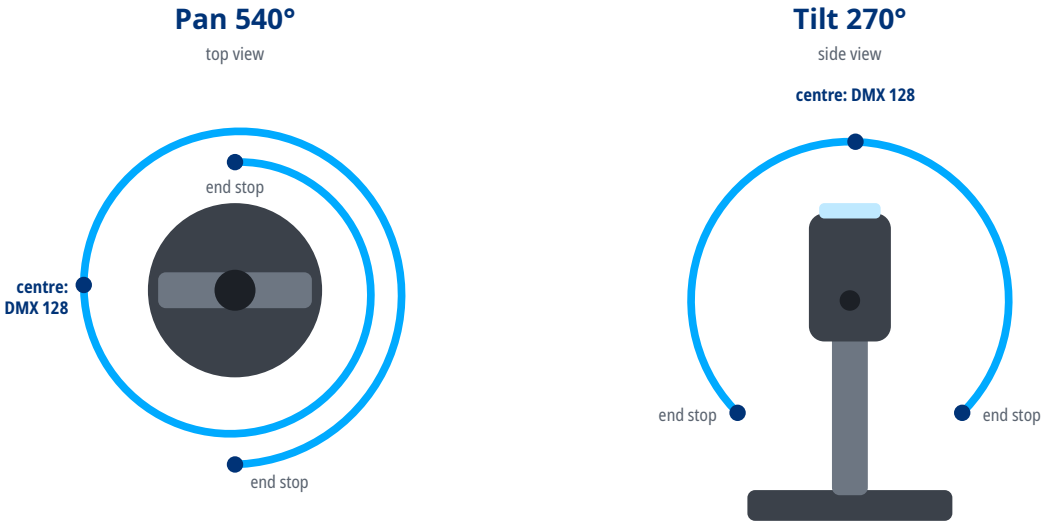
⚠ CAUTION

- 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

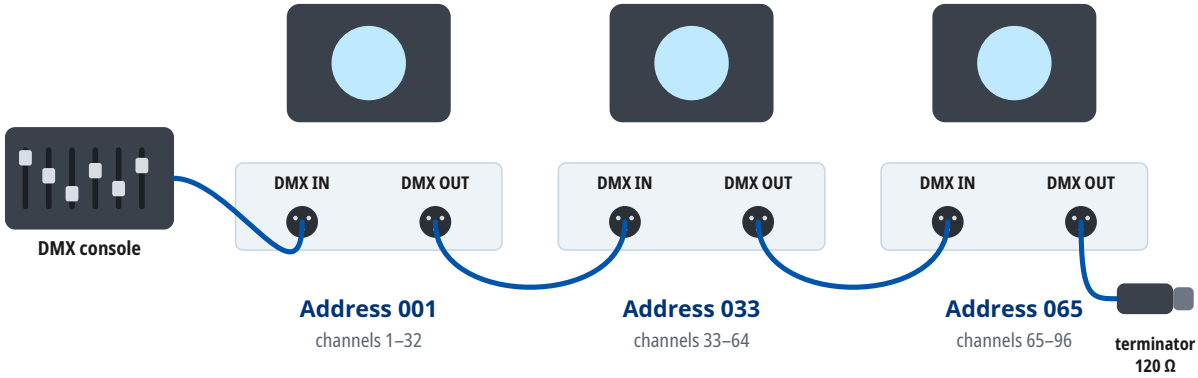
> ⚠ **WARNING**
>
> - Rigging must be carried out only by qualified persons in accordance with applicable regulations, in particular those for work at height.
> - The supporting structure and fixings must safely carry the weight of all suspended devices; verify their load capacity in advance.
> - Weight of the device: 26 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 32CH: every unit occupies 32 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 32CH”: 32.
- 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 32CH”, you can use, for example, the start addresses 1, 33, 65, 97.
- 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

	Standard 27CH 27 channels	Extended 32CH 32 channels
Pan / Tilt	1, 3	1, 3
Dimmer	5	5
Shutter / strobe	7	7
Color mixing	8–10	8, 10, 12
Color wheel	11	14
Gobo wheel	13, 16	16, 19
Gobo rotation	14	16, 17
Prism	21–24	24–27
Frost	25	28
Zoom	17	20
Focus	19	22
Animation wheel	26	29

Color wheel



Gobo wheel 1

1
Beam Mode
DMX 0–2

2 
Gobo 1
DMX 6–15

3 
Gobo 2
DMX 16–25

4 
Gobo 3
DMX 26–35

5 
Gobo 4
DMX 36–45

6 
Gobo 5
DMX 46–55

7 
Gobo 6
DMX 56–65

8 
Gobo 7
DMX 66–75

9 
Gobo 8
DMX 76–85

10 
Gobo1 9
DMX 86–96

Gobo wheel 2

1
Gobo: Open
DMX 0–5

2 
Gobo 1
DMX 6–11

3 
Gobo 2
DMX 12–17

4 
Gobo 3
DMX 18–23

5 
Gobo 4
DMX 24–29

6 
Gobo 5
DMX 30–35

7 
Gobo 6
DMX 36–41

8 
Gobo 7
DMX 42–47

9 
Gobo 8
DMX 48–53

10 
Gobo 9
DMX 54–59

11 
Gobo 10
DMX 60–65

12 
Gobo 11
DMX 66–71

13 
Gobo 12
DMX 72–77

14 
Gobo 13
DMX 78–83

Prism 1

1
No Prism
DMX 0–5

2 
12 facets
12 Facet Prism
DMX 6–127

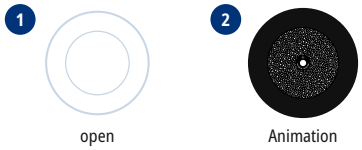
3 
6 facets
6 Liner Prism
DMX 128–255

Prism 2

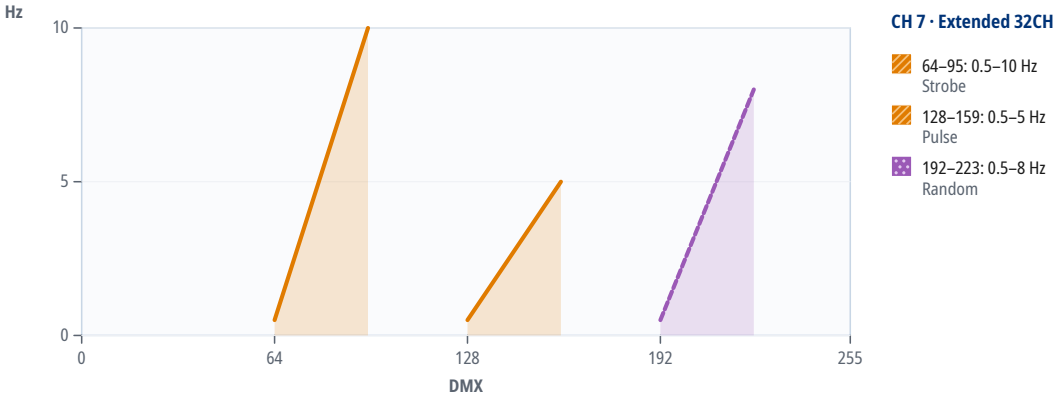
1
Open
DMX 0–5

2 
32 facets
32 Facet Prism
DMX 6–255

Animation wheel

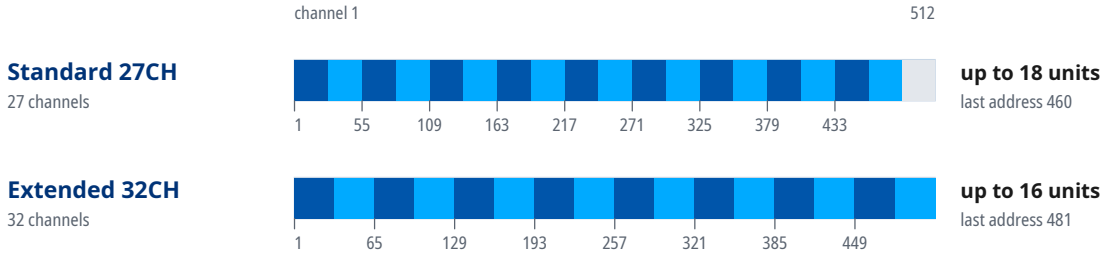


Strobe rate



9 DMX channels

Units in one DMX universe



Start addresses of 20 units in the mode “Extended 32CH”

Unit	Start address	Unit	Start address	Unit	Start address	Unit	Start address
1	1	6	161	11	321	16	481
2	33	7	193	12	353	17	U2 · 1
3	65	8	225	13	385	18	U2 · 33
4	97	9	257	14	417	19	U2 · 65
5	129	10	289	15	449	20	U2 · 97

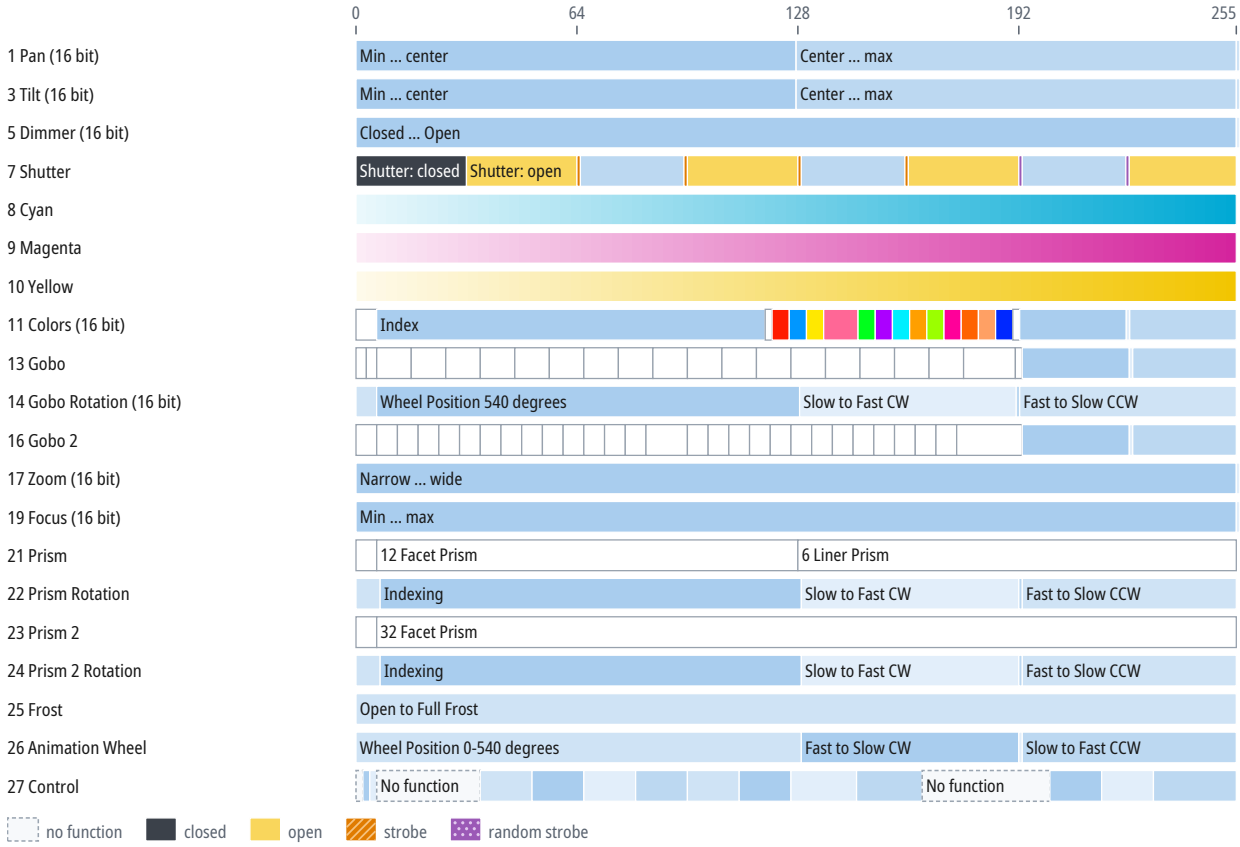
Where a DMX universe is full, the next units continue in the next universe: “U2 · 1” is address 1 in the second universe, counted from the universe of the first unit.

Mode Standard 27CH

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 5 Dimmer above 0; CH 7 Shutter at 32–63 “open” or 96–127 or 160–191 or 224–255. The GDTF file gives these values for a console's Highlight function: CH 5 Dimmer 255, CH 7 Shutter 50, CH 8 Cyan 0, CH 9 Magenta 0, CH 10 Yellow 0, CH 11 Colors 0.

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	Dimmer	0–255	Closed ... Open
		255	Open
6	Dimmer Fine	0–255	Fine adjustment of CH 5
7	Shutter	0–31	Shutter: closed
		32–63	Shutter: open

CH	Function	DMX	Description
7	Shutter (continued)	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)
8	Cyan	0–255	
9	Magenta	0–255	
10	Yellow	0–255	
11	Colors	0–5	Open
		6–118	Index
		119–120	Color: Open
		121–125	Deep Red
		126–130	Blue
		131–135	Yellow
		136–145	Magenta
		146–150	Green
		151–155	Lavender
		156–160	Cyan
		161–165	Orange
		166–170	Mint
		171–175	Pink
		176–180	Amber
		181–185	CTO 3200K
		186–190	Deep Blue
		191–192	Colour off (open)
		193–223	Fast to Slow CW (180–5.08 °/s)
		224	Spin: Stop
		225–255	Slow to Fast CCW (5.08–180 °/s)
12	Colors Fine	0–255	Fine adjustment of CH 11
13	Gobo	0–2	Beam Mode
		3–5	Spot Mode
		6–15	Gobo 1
		16–25	Gobo 2
		26–35	Gobo 3
		36–45	Gobo 4

CH	Function	DMX	Description
13	Gobo (continued)	46–55	Gobo 5
		56–65	Gobo 6
		66–75	Gobo 7
		76–85	Gobo 8
		86–95	Gobo 9
		96–105	Gobo 1 shake (0.1–1 Hz)
		106–115	Gobo 2 shake (0.1–1 Hz)
		116–125	Gobo 3 shake (0.1–1 Hz)
		126–135	Gobo 4 shake (0.1–1 Hz)
		136–145	Gobo 5 shake (0.1–1 Hz)
		146–155	Gobo 6 shake (0.1–1 Hz)
		156–165	Gobo 7 shake (0.1–1 Hz)
		166–175	Gobo 8 shake (0.1–1 Hz)
		176–190	Gobo 9 shake (0.1–1 Hz)
		191–192	Shake: Open
		193–223	Fast to Slow CW (180–8 °/s)
		224	Spin: Stop
		225–255	Slow to Fast CCW (8–180 °/s)
14	Gobo Rotation	0–5	Wheel Position 0 degrees
		6–128	Wheel Position 540 degrees
		129–191	Slow to Fast CW (8–180 °/s)
		192	Pos Rotate: Stop
		193–255	Fast to Slow CCW (180–8 °/s)
15	Gobo Rotation Fine	0–255	Fine adjustment of CH 14
16	Gobo 2	0–5	Gobo: Open
		6–11	Gobo 1
		12–17	Gobo 2
		18–23	Gobo 3
		24–29	Gobo 4
		30–35	Gobo 5
		36–41	Gobo 6
		42–47	Gobo 7
		48–53	Gobo 8
		54–59	Gobo 9
		60–65	Gobo 10
		66–71	Gobo 11
		72–77	Gobo 12
		78–83	Gobo 13
		84–95	Gobo: Open
		96–101	Gobo 1 shake (0.1–1 Hz)
		102–107	Gobo 2 shake (0.1–1 Hz)
		108–113	Gobo 3 shake (0.1–1 Hz)

CH	Function	DMX	Description
16	Gobo 2 (continued)	114–119	Gobo 4 shake (0.1–1 Hz)
		120–125	Gobo 5 shake (0.1–1 Hz)
		126–131	Gobo 6 shake (0.1–1 Hz)
		132–137	Gobo 7 shake (0.1–1 Hz)
		138–143	Gobo 8 shake (0.1–1 Hz)
		144–149	Gobo 9 shake (0.1–1 Hz)
		150–155	Gobo 10 shake (0.1–1 Hz)
		156–161	Gobo 11 shake (0.1–1 Hz)
		162–167	Gobo 12 shake (0.1–1 Hz)
		168–173	Gobo 13 shake (0.1–1 Hz)
		174–192	Shake: Open
		193–223	Fast to Slow CW (180–8 °/s)
		224	Spin: Stop
		225–255	Slow to Fast CCW (8–180 °/s)
17	Zoom	0–255	Narrow ... wide
		255	Wide
18	Zoom Fine	0–255	Fine adjustment of CH 17
19	Focus	0–255	Min ... max
		255	Max
20	Focus Fine	0–255	Fine adjustment of CH 19
21	Prism	0–5	No Prism
		6–127	12 Facet Prism
		128–255	6 Liner Prism
22	Prism Rotation	0–6	Rot Off
		7–128	Indexing
		129–191	Slow to Fast CW (8–180 °/s)
		192	Rotate: Stop
		193–255	Fast to Slow CCW (180–8 °/s)
23	Prism 2	0–5	Open
		6–255	32 Facet Prism
24	Prism 2 Rotation	0–6	Rot Off
		7–128	Indexing
		129–191	Slow to Fast CW (8–180 °/s)
		192	Rotate: Stop
		193–255	Fast to Slow CCW (180–8 °/s)
25	Frost	0–255	Open to Full Frost
26	Animation Wheel	0–128	Wheel Position 0-540 degrees (540°)
		129–191	Fast to Slow CW (180–8 °/s)
		192	Pos Rotate: Stop
		193–255	Slow to Fast CCW (8–180 °/s)
27	Control	0–1	No function
		2–3	OFF Display Backlight

CH	Function	DMX	Description
27	Control (continued)	4–5	On Display Backlight
		6–35	No function
		36–50	Lamp On(Hold 3s)
		51–65	Lamp Off(Hold 3s)
		66–80	Invert Pan on(Hold 3s)
		81–95	Invert Pan off((Hold 5s)
		96–110	Invert Tilt on (Hold 3s)
		111–125	Invert Tilt off (Hold 5s)
		126–144	Standard CRI(Hold 3s)
		145–163	High CRI(Hold 3s)
		164–200	No function
		201–215	Reset Pan/Tilt (Hold 3s)
		216–230	Reset only Head (Hold 3s)
		231–255	Reset All Functions (Hold 3s)

Mode Extended 32CH

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 5 Dimmer above 0; CH 7 Shutter at 32–63 “open” or 96–127 or 160–191 or 224–255. The GDTF file gives these values for a console's Highlight function: CH 5 Dimmer 255, CH 7 Shutter 50, CH 8 Cyan 0, CH 10 Magenta 0, CH 12 Yellow 0, CH 14 Colors 0.

Channel functions at a glance



CH	Function	DMX	Description
1	Pan		Same as CH 1 in the mode “Standard 27CH” (p. 11)
2	Pan Fine	0–255	Fine adjustment of CH 1
3	Tilt		Same as CH 3 in the mode “Standard 27CH” (p. 11)
4	Tilt Fine	0–255	Fine adjustment of CH 3
5	Dimmer		Same as CH 5 in the mode “Standard 27CH” (p. 11)
6	Dimmer Fine	0–255	Fine adjustment of CH 5
7	Shutter		Same as CH 7 in the mode “Standard 27CH” (p. 11)
8	Cyan	0–255	
9	Cyan Fine	0–255	Fine adjustment of CH 8
10	Magenta	0–255	
11	Magenta Fine	0–255	Fine adjustment of CH 10
12	Yellow	0–255	
13	Yellow Fine	0–255	Fine adjustment of CH 12

CH	Function	DMX	Description
14	Colors		Same as CH 11 in the mode “Standard 27CH” (p. 12)
15	Colors Fine	0–255	Fine adjustment of CH 14
16	Gobo		Same as CH 13 in the mode “Standard 27CH” (p. 12)
17	Gobo Rotation	0–5	Rot Off
		6–128	0-540
		129–191	Slow to Fast CW (8–180 °/s)
		192	Pos Rotate: Stop
		193–255	Fast to Slow CCW (180–8 °/s)
18	Gobo Rotation Fine	0–255	Fine adjustment of CH 17
19	Gobo 2		Same as CH 16 in the mode “Standard 27CH” (p. 13)
20	Zoom		Same as CH 17 in the mode “Standard 27CH” (p. 14)
21	Zoom Fine	0–255	Fine adjustment of CH 20
22	Focus		Same as CH 19 in the mode “Standard 27CH” (p. 14)
23	Focus Fine	0–255	Fine adjustment of CH 22
24	Prism		Same as CH 21 in the mode “Standard 27CH” (p. 14)
25	Prism Rotation	0–6	Rot Off
		7–128	Indexing
		129–191	Fast to Slow CW (180–2.86 °/s)
		192	Rotate: Stop
		193–255	Slow to Fast CCW (2.86–180 °/s)
26	Prism 2		Same as CH 23 in the mode “Standard 27CH” (p. 14)
27	Prism 2 Rotation	0–6	Rot Off
		7–128	Indexing
		129–191	Fast to Slow CW (180–2.86 °/s)
		192	Rotate: Stop
		193–255	Slow to Fast CCW (2.86–180 °/s)
28	Frost	0–255	Open to Full Frost
29	Animation Wheel	0–128	Wheel Position 0-540 degrees (540°)
		129–191	Fast to Slow CW (180–2.15 °/s)
		192	Pos Rotate: Stop
		193–255	Slow to Fast CCW (2.15–180 °/s)
30	Animation Wheel Fine	0–255	Fine adjustment of CH 29
31	Speed Pan/Tilt		P/T Speed
		0–255	Max to Min speed
32	Control		Same as CH 27 in the mode “Standard 27CH” (p. 14)

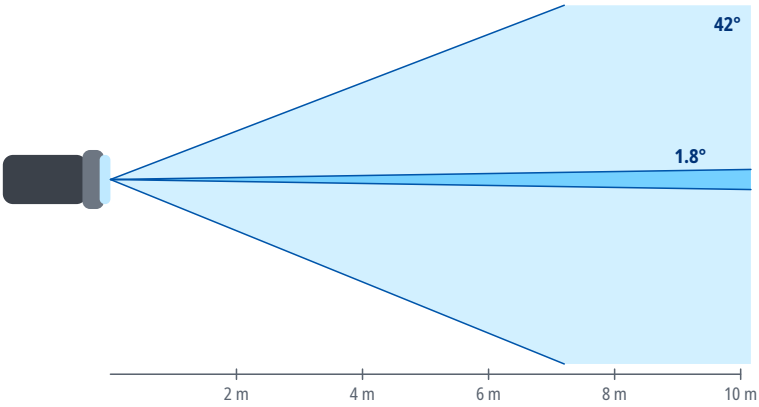
10 Technical specifications

Parameter	Value
Light	
Light source	discharge lamp
Lamp power	550 W
Luminous flux	20,000 lm
Color temperature	6,500 K
Color rendering index (CRI)	80
Optics	
Zoom	1.8–42°
Movement	
Pan	540°
Tilt	270°
Control	
DMX connection	3-pin XLR IN/OUT
Electrical	
Power connectors	powerCON TRUE1 IN
Dimensions and construction	
Weight	26 kg
Operating environment	
Operating temperature	-20 to 45 °C

Speeds and ranges

Parameter	Value
Strobe frequency	0.5–10 Hz
Color wheel rotation	up to 180 °/s (30 rpm)
Gobo wheel 1 rotation	up to 180 °/s (30 rpm)
Gobo wheel 2 rotation	up to 180 °/s (30 rpm)
Gobo 1 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)
Animation wheel rotation	up to 180 °/s (30 rpm)

Spot diameter



Distance	Ø 1.8°	Ø 42°
2 m	0.06 m	1.5 m
4 m	0.13 m	3.1 m
6 m	0.19 m	4.6 m
8 m	0.25 m	6.1 m
10 m	0.31 m	7.7 m
15 m	0.47 m	11.5 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.