DMX REFERENCE

AECO 5

ACME AECO 5

ACME



Manufacturer	ACME
GDTF file	ACME_AECO_5_170450.gdtf
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1 About this manual

This document describes the ACME AECO 5 by ACME. It was compiled from the GDTF file ACME_AECO_5_170450.gdtf from the GDTF-Share library.

File revision: “AECO 5”.

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	40 kg

DMX modes

Mode	Channels	Units in one universe	First start addresses
Mode 1 33 DMX	33	15	1, 34, 67, 100, ...
Mode 2 24 DMX	24	21	1, 25, 49, 73, ...
Mode 2 28 DMX	28	18	1, 29, 57, 85, ...

No light? Check these channels

- Mode 1 33 DMX: CH 21 Shutter at 8–15 “Open” or 132–139 or 182–189 or 232–239 or 248–255; CH 22 Dimmer above 0
- Mode 2 24 DMX: CH 21 Shutter at 8–15 “Open” or 132–139 or 182–189 or 232–239 or 248–255; CH 22 Dimmer above 0
- Mode 2 28 DMX: CH 16 Shutter at 8–15 “Open” or 132–139 or 182–189 or 232–239 or 248–255; CH 17 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

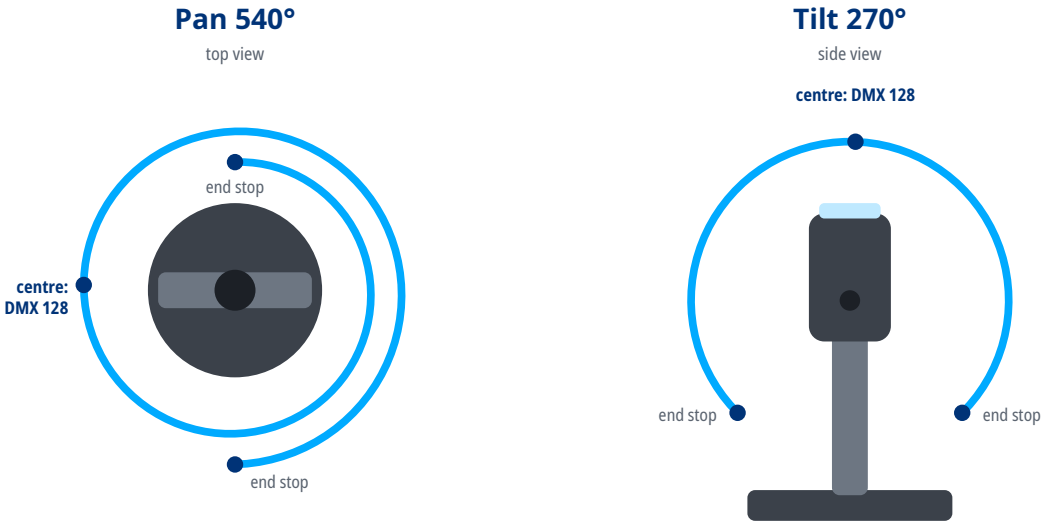
- Strobe and fast flashing light effects can trigger epileptic seizures in susceptible people (photosensitive epilepsy) and can cause nausea or disorientation.
- Inform the audience and performers in advance that strobe effects will be used, for example with a notice at the entrance, and do not use them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

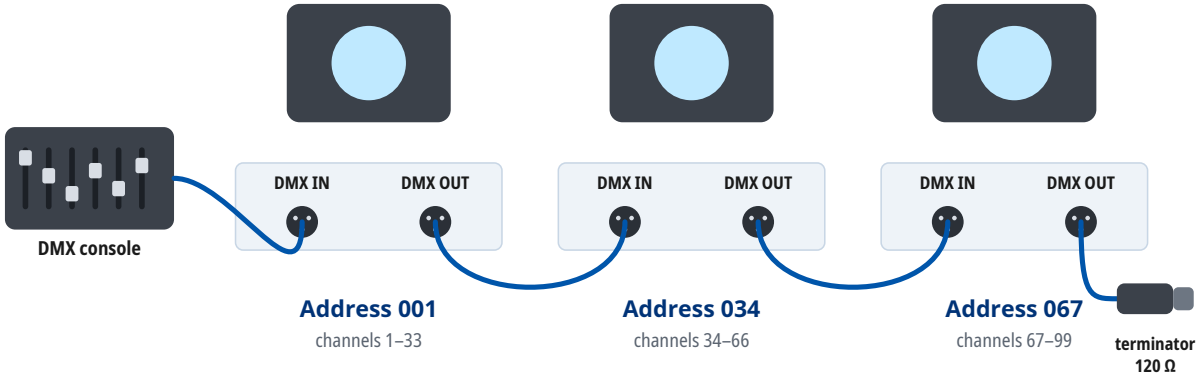
- Rigging must be carried out only by qualified persons in accordance with applicable regulations, in particular those for work at height.
- The supporting structure and fixings must safely carry the weight of all suspended devices; verify their load capacity in advance.
- Weight of the device: 40 kg.
- 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 1 33 DMX: every unit occupies 33 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 1 33 DMX”: 33.
- 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 “Mode 1 33 DMX”, you can use, for example, the start addresses 1, 34, 67, 100.
- 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 33 DMX 33 channels	Mode 2 24 DMX 24 channels	Mode 2 28 DMX 28 channels
Pan / Tilt	1, 3	1, 3	1, 3
Dimmer	22	22	17
Shutter / strobe	21	21	16
Color mixing	6–8	6–8	6–8
Color temperature	9	9	9
Color wheel	10	10	10
Gobo wheel	11, 13	11, 13	
Gobo rotation	12	12	
Prism	15, 16	15, 16	
Frost	17, 18	17, 18	12, 13
Zoom	19	19	14
Focus	20	20	15
Iris	14	14	11

Color wheel



1. Color: Open — DMX 0–9
2. Color 1 — DMX 10–18
3. Color 2 — DMX 19–27
4. Color 3 — DMX 28–36
5. Color 4 — DMX 37–45
6. Color 5 — DMX 46–54
7. UV — DMX 55–64

Gobo wheel 1



1. Gobo: Open — DMX 0–7
2. Gobo 1 — DMX 8–15
3. Gobo 2 — DMX 16–23
4. Gobo 3 — DMX 24–31
5. Gobo 4 — DMX 32–39
6. Gobo 5 — DMX 40–47
7. Gobo 6 — DMX 48–55
8. Gobo 7 — DMX 56–64

Gobo wheel 2

1 Gobo: Open
DMX 0–7



2 Gobo 1
DMX 8–14

3 Gobo 2
DMX 15–21



4 Gobo 3
DMX 22–28



5 Gobo 4
DMX 29–35



6 Gobo 5
DMX 36–42



7 Gobo 6
DMX 43–49



8 Gobo 7
DMX 50–56



9 Gobo 8
DMX 57–64



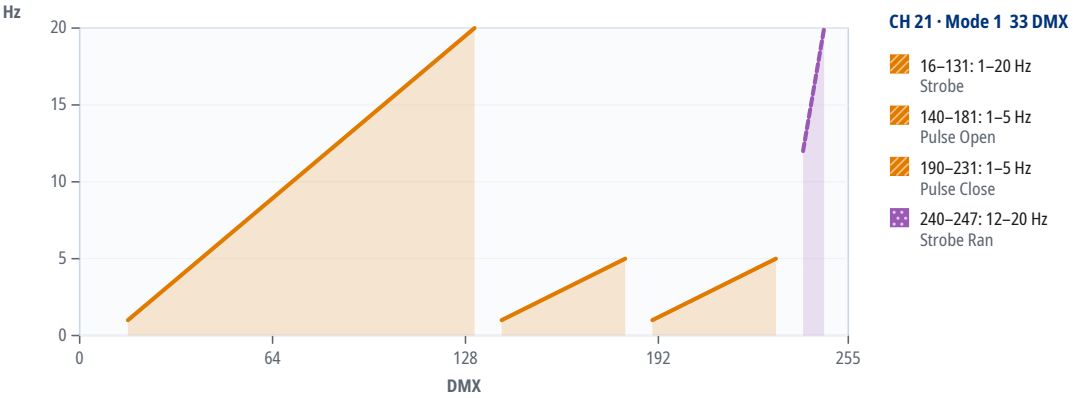
Prism

1 Open
DMX 0–8

2 4 facets
Prism 1
DMX 8–255



Strobe rate



9 DMX channels

Units in one DMX universe



Start addresses of 20 units in the mode “Mode 1 33 DMX”

Unit	Start address	Unit	Start address	Unit	Start address	Unit	Start address
1	1	6	166	11	331	16	U2 · 1
2	34	7	199	12	364	17	U2 · 34
3	67	8	232	13	397	18	U2 · 67
4	100	9	265	14	430	19	U2 · 100
5	133	10	298	15	463	20	U2 · 133

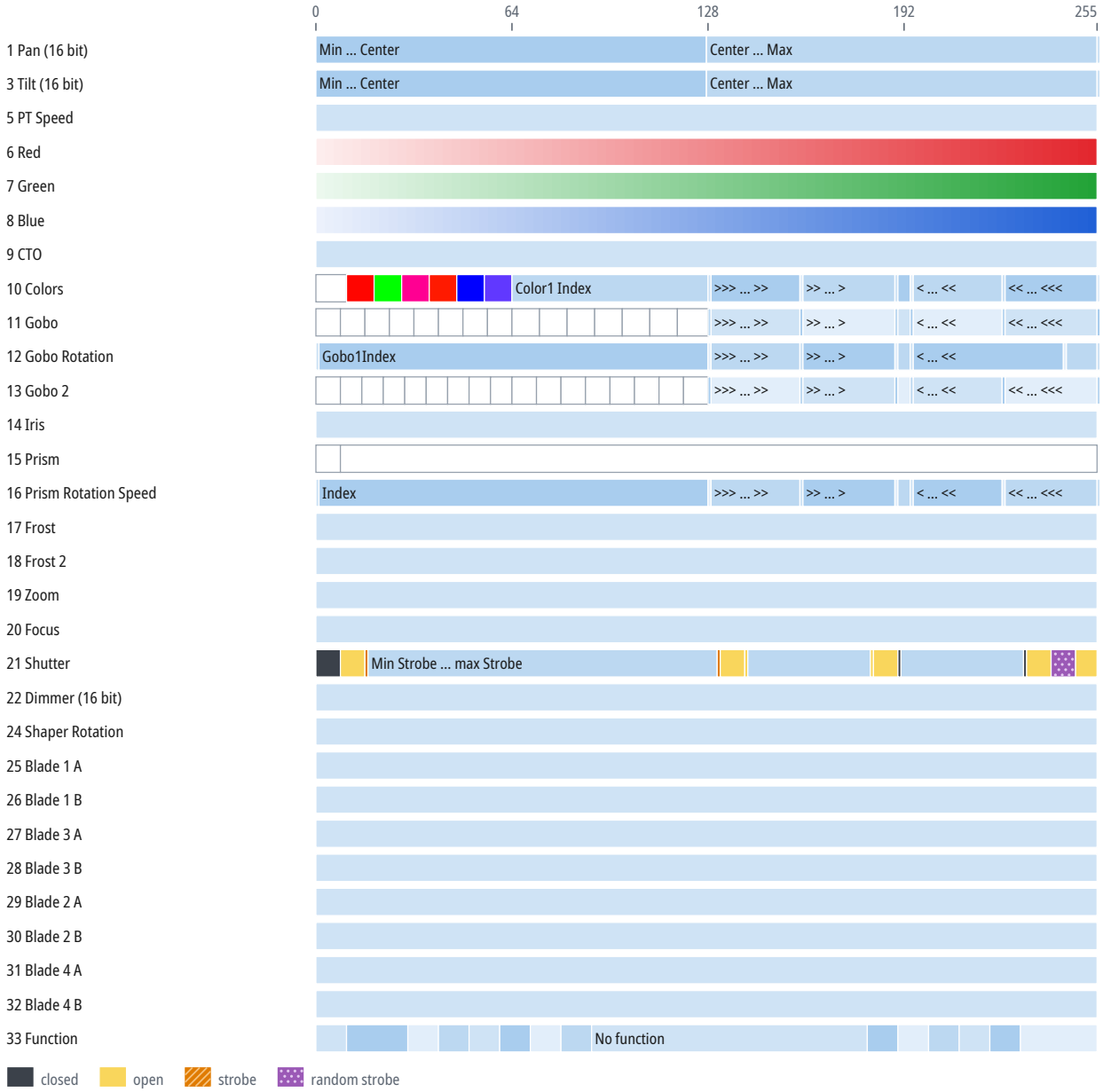
Where a DMX universe is full, the next units continue in the next universe: “U2 · 1” is address 1 in the second universe, counted from the universe of the first unit.

Mode 1 33 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 21 Shutter at 8–15 “Open” or 132–139 or 182–189 or 232–239 or 248–255; CH 22 Dimmer above 0. The GDTF file gives these values for a console's Highlight function: CH 6 Red 0, CH 7 Green 0, CH 8 Blue 0, CH 9 CTO 0, CH 10 Colors 0, CH 21 Shutter 12, CH 22 Dimmer 255.

Channel functions at a glance



CH	Function	DMX	Description
1	Pan	0–127	Min ... Center
		127	Center
		128–255	Center ... Max
		255	Max
2	Pan Fine	0–255	Fine adjustment of CH 1

CH	Function	DMX	Description
3	Tilt	0–127	Min … Center
		128–255	Center … Max
		255	Max
4	Tilt Fine	0–255	Fine adjustment of CH 3
5	PT Speed	0–255	
6	Red	0–255	
7	Green	0–255	
8	Blue	0–255	
9	CTO	0–255	6000–2700 K
10	Colors	0–9	Color: Open
		10–18	Color 1
		19–27	Color 2
		28–36	Color 3
		37–45	Color 4
		46–54	Color 5
		55–63	Color 6
		64–127	Color1 Index
		128	>>>
		129–157	>>> … >>
		158	>>
		159–188	>> … >
		189	>
		190–193	Stop
		194	<
		195–223	< … <<
		224	<<
		225–254	<< … <<<
		255	<<<
11	Gobo	0–7	Gobo: Open
		8–15	Gobo 1
		16–23	Gobo 2
		24–31	Gobo 3
		32–39	Gobo 4
		40–47	Gobo 5
		48–55	Gobo 6
		56–63	Gobo 7
		64–72	Gobo 1 Shake
		73–81	Gobo 2 Shake
		82–90	Gobo 3 Shake
		91–99	Gobo 4 Shake
		100–108	Gobo 5 Shake
		109–117	Gobo 6 Shake

CH	Function	DMX	Description
11	Gobo (continued)	118–127	Gobo 7 Shake
		128	>>>
		129–157	>>> ... >>
		158	>>
		159–188	>> ... >
		189	>
		190–193	Spot
		194	<
		195–223	< ... <<
		224	<<
		225–254	<< ... <<<
		255	<<<
12	Gobo Rotation	0	Index: Open
		1–127	Gobo1Index
		128	>>>
		129–157	>>> ... >>
		158	>>
		159–188	>> ... >
		189	>
		190–193	Stop
		194	<
		195–243	< ... <<
		244	<<
		245–254	<< ... <<<
		255	<<<
13	Gobo 2	0–7	Gobo: Open
		8–14	Gobo 1
		15–21	Gobo 2
		22–28	Gobo 3
		29–35	Gobo 4
		36–42	Gobo 5
		43–49	Gobo 6
		50–56	Gobo 7
		57–63	Gobo 8
		64–71	Gobo1Shake
		72–79	Gobo 2 Shake
		80–87	Gobo3 Shake
		88–95	Gobo4 Shake
		96–103	Gobo5 Shake
		104–111	Gobo6 Shake
		112–119	Gobo7 Shake
		120–127	Gobo8 Shake

CH	Function	DMX	Description
13	Gobo 2 (continued)	128	>>>
		129–157	>>> ... >>
		158	>>
		159–188	>> ... >
		189	>
		190–193	Spot
		194	<
		195–223	< ... <<
		224	<<
		225–254	<< ... <<<
		255	<<<
14	Iris	0–255	
15	Prism	0–7	Open
		8–255	Prism 1
16	Prism Rotation Speed	0	Index: Open
		1–127	Index
		128	>>>
		129–157	>>> ... >>
		158	>>
		159–188	>> ... >
		189	>
		190–193	Stop
		194	<
		195–223	< ... <<
		224	<<
		225–254	<< ... <<<
		255	<<<
17	Frost	0–255	
18	Frost 2	0–255	
19	Zoom	0–255	54–6.5°
20	Focus	0–255	
21	Shutter	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

CH	Function	DMX	Description
21	Shutter (continued)	191–230	Min Pulse Close … max Pulse Close
		231	Max Pulse Close
		232–239	Open 4
		240–247	Strobe Ran (12–20 Hz)
		248–255	Open 5
22	Dimmer	0–255	
23	Dimmer Fine	0–255	Fine adjustment of CH 22
24	Shaper Rotation	0–255	
25	Blade 1 A	0–255	
26	Blade 1 B	0–255	
27	Blade 3 A	0–255	
28	Blade 3 B	0–255	
29	Blade 2 A	0–255	
30	Blade 2 B	0–255	
31	Blade 4 A	0–255	
32	Blade 4 B	0–255	
33	Function	0–9	No function
		10–29	Dummy
		30–39	Dim Square Law
		40–49	Dim Inv Square Law
		50–59	Dim Curve Line
		60–69	Dim Curve S
		70–79	Standard
		80–89	Quiet
		90–179	No function
		180–189	Dimmer Fast
		190–199	Dim Smooth
		200–209	All Reset
		210–219	Eff Reset
		220–229	PT Reset
		230–255	No function

Mode 2 24 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 21 Shutter at 8–15 “Open” or 132–139 or 182–189 or 232–239 or 248–255; CH 22 Dimmer above 0. The GDTF file gives these values for a console's Highlight function: CH 6 Red 0, CH 7 Green 0, CH 8 Blue 0, CH 9 CTO 0, CH 10 Colors 0, CH 21 Shutter 12, CH 22 Dimmer 255.

Channel functions at a glance



CH	Function	DMX	Description
1	Pan		Same as CH 1 in the mode “Mode 1 33 DMX” (p. 10)
2	Pan Fine	0–255	Fine adjustment of CH 1
3	Tilt		Same as CH 3 in the mode “Mode 1 33 DMX” (p. 11)
4	Tilt Fine	0–255	Fine adjustment of CH 3
5	PT Speed	0–255	
6	Red	0–255	
7	Green	0–255	
8	Blue	0–255	
9	CTO	0–255	6000–2700 K
10	Colors		Same as CH 10 in the mode “Mode 1 33 DMX” (p. 11)
11	Gobo		Same as CH 11 in the mode “Mode 1 33 DMX” (p. 11)
12	Gobo Rotation		Same as CH 12 in the mode “Mode 1 33 DMX” (p. 12)
13	Gobo 2		Same as CH 13 in the mode “Mode 1 33 DMX” (p. 12)

CH	Function	DMX	Description
14	Iris	0–255	
15	Prism		Same as CH 15 in the mode “Mode 1 33 DMX” (p. 13)
16	Prism Rotation Speed		Same as CH 16 in the mode “Mode 1 33 DMX” (p. 13)
17	Frost	0–255	
18	Frost 2	0–255	
19	Zoom	0–255	54–6.5°
20	Focus	0–255	
21	Shutter		Same as CH 21 in the mode “Mode 1 33 DMX” (p. 13)
22	Dimmer	0–255	
23	Dimmer Fine	0–255	Fine adjustment of CH 22
24	Function		Same as CH 33 in the mode “Mode 1 33 DMX” (p. 14)

Mode 2 28 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 16 Shutter at 8–15 “Open” or 132–139 or 182–189 or 232–239 or 248–255; CH 17 Dimmer above 0. The GDTF file gives these values for a console's Highlight function: CH 6 Red 0, CH 7 Green 0, CH 8 Blue 0, CH 9 CTO 0, CH 10 Colors 0, CH 16 Shutter 12, CH 17 Dimmer 255.

Channel functions at a glance



CH	Function	DMX	Description
1	Pan		Same as CH 1 in the mode “Mode 1 33 DMX” (p. 10)
2	Pan Fine	0–255	Fine adjustment of CH 1
3	Tilt		Same as CH 3 in the mode “Mode 1 33 DMX” (p. 11)
4	Tilt Fine	0–255	Fine adjustment of CH 3
5	PT Speed	0–255	
6	Red	0–255	
7	Green	0–255	
8	Blue	0–255	
9	CTO	0–255	6000–2700 K

CH	Function	DMX	Description
10	Colors		Same as CH 10 in the mode “Mode 1 33 DMX” (p. 11)
11	Iris	0–255	
12	Frost	0–255	
13	Frost 2	0–255	
14	Zoom	0–255	54–6.5°
15	Focus	0–255	
16	Shutter		Same as CH 21 in the mode “Mode 1 33 DMX” (p. 13)
17	Dimmer	0–255	
18	Dimmer Fine	0–255	Fine adjustment of CH 17
19	Shaper Rotation	0–255	
20	Blade 1 A	0–255	
21	Blade 1 B	0–255	
22	Blade 3 A	0–255	
23	Blade 3 B	0–255	
24	Blade 2 A	0–255	
25	Blade 2 B	0–255	
26	Blade 4 A	0–255	
27	Blade 4 B	0–255	
28	Function		Same as CH 33 in the mode “Mode 1 33 DMX” (p. 14)

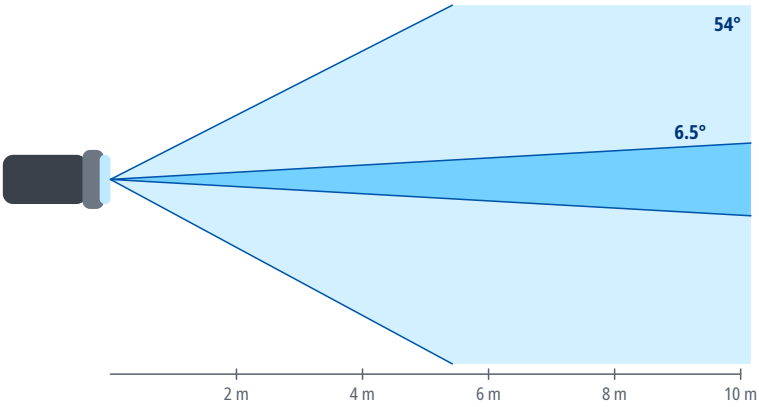
10 Technical specifications

Parameter	Value
Light	
Light source	LED
LED power	500 W
Luminous flux	4,000 lm
Color temperature	6,000 K
Color rendering index (CRI)	93
Optics	
Zoom	6.5–54°
Movement	
Pan	540°
Tilt	270°
Dimensions and construction	
Weight	40 kg
Operating environment	
Operating temperature	0 to 40 °C

Speeds and ranges

Parameter	Value
Color temperature range	2700–6000 K
Strobe frequency	1–20 Hz
Color wheel rotation	up to 120 °/s (20 rpm)
Gobo wheel 1 rotation	up to 80 °/s (13 rpm)
Gobo wheel 2 rotation	up to 80 °/s (13 rpm)
Gobo 1 rotation	up to 240 °/s (40 rpm)
Prism rotation	up to 180 °/s (30 rpm)

Spot diameter



Distance	Ø 6.5°	Ø 54°
2 m	0.23 m	2 m
4 m	0.45 m	4.1 m
6 m	0.68 m	6.1 m
8 m	0.91 m	8.2 m
10 m	1.1 m	10.2 m
15 m	1.7 m	15.3 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.