DMX REFERENCE

ELF BEAM 100 MOVING HEAD

AFX

Manufacturer	AFX
GDTF file	AFX_ELF_BEAM_100_MOVING_HEAD_142405.gdtf
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1 About this manual

This document describes the ELF BEAM 100 MOVING HEAD by AFX. It was compiled from the GDTF file AFX_ELF_BEAM_100_MOVING_HEAD_142405.gdtf from the GDTF-Share library.

File revision: “ELF BEAM 100 MOVING HEAD”.

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 AFX; 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
Power consumption	850 W
Weight	5.6 kg

DMX modes

Mode	Channels	Units in one universe	First start addresses
16 Channel	19	26	1, 20, 39, 58, ...
20 Channel	20	25	1, 21, 41, 61, ...

No light? Check these channels

- 20 Channel: CH 6 Shutter at 252–255 “Open”


Read the manual before use


Risk of electric shock


Do not stare into the light


Indoor use only

3 Safety instructions


Read the manual before use


Risk of electric shock


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

- Connect the device only to a properly installed mains outlet with a protective earth (ground) contact. The outlet or other means of disconnection must remain easily accessible.
- Power supply: 100–240 V, 50/60 Hz. Before connecting, make sure that the mains voltage matches this value and the value on the rating plate of the device.
- Do not connect the device to a dimmer or to a dimmed circuit.
- Use only the original power cable or a cable with identical ratings. Protect the cable from damage, do not run it over sharp edges, and never unplug it by pulling on the cable.
- When connecting several devices to one circuit, do not exceed its permitted load.
- Do not touch the device with wet hands.

⚠ 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.

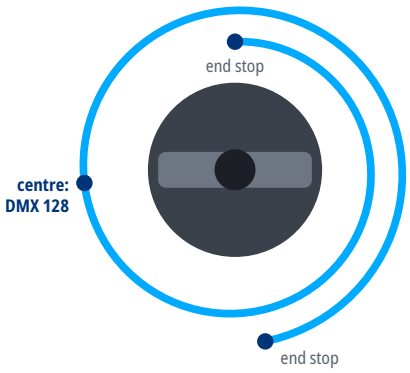
> ⚠ **WARNING**
>
> - The moving parts of the device (for example the head or arms) can move quickly and unexpectedly at any time – after power-on, during a reset, or on a command from the controller.
> - Keep yourself and any objects out of the range of movement. While the device is switched on, do 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 530°

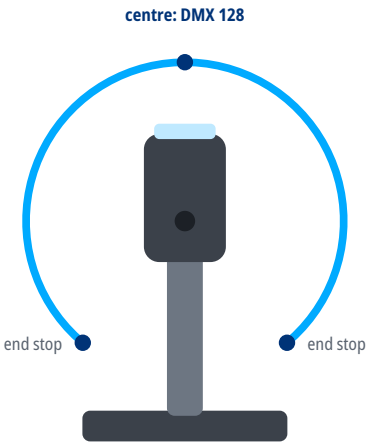
top view



full travel in 2.9 s

Tilt 280°

side view



full travel in 2.2 s

Full-travel times as stated in the GDTF file.

5 Installation

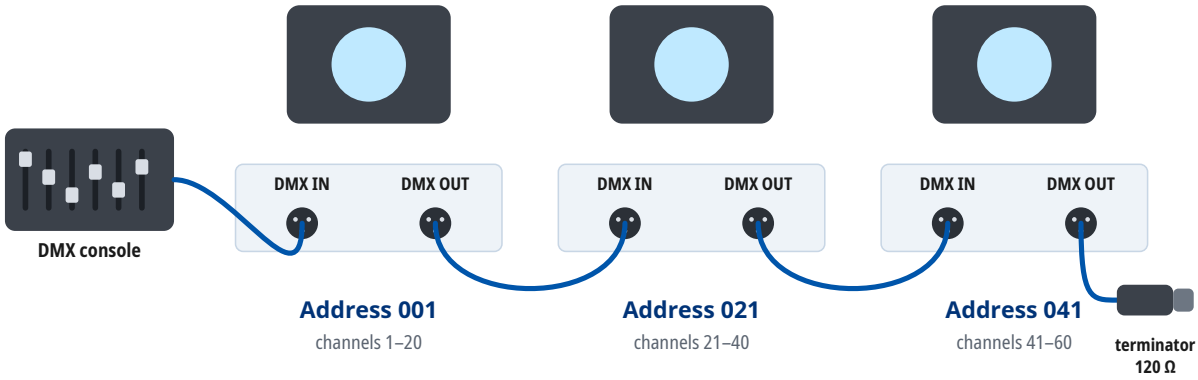
⚠ **WARNING**

- Rigging must be carried out only by qualified persons in accordance with applicable regulations, in particular those for work at height.
- The supporting structure and fixings must safely carry the weight of all suspended devices; verify their load capacity in advance.
- Weight of the device: 5.6 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 20 Channel: every unit occupies 20 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

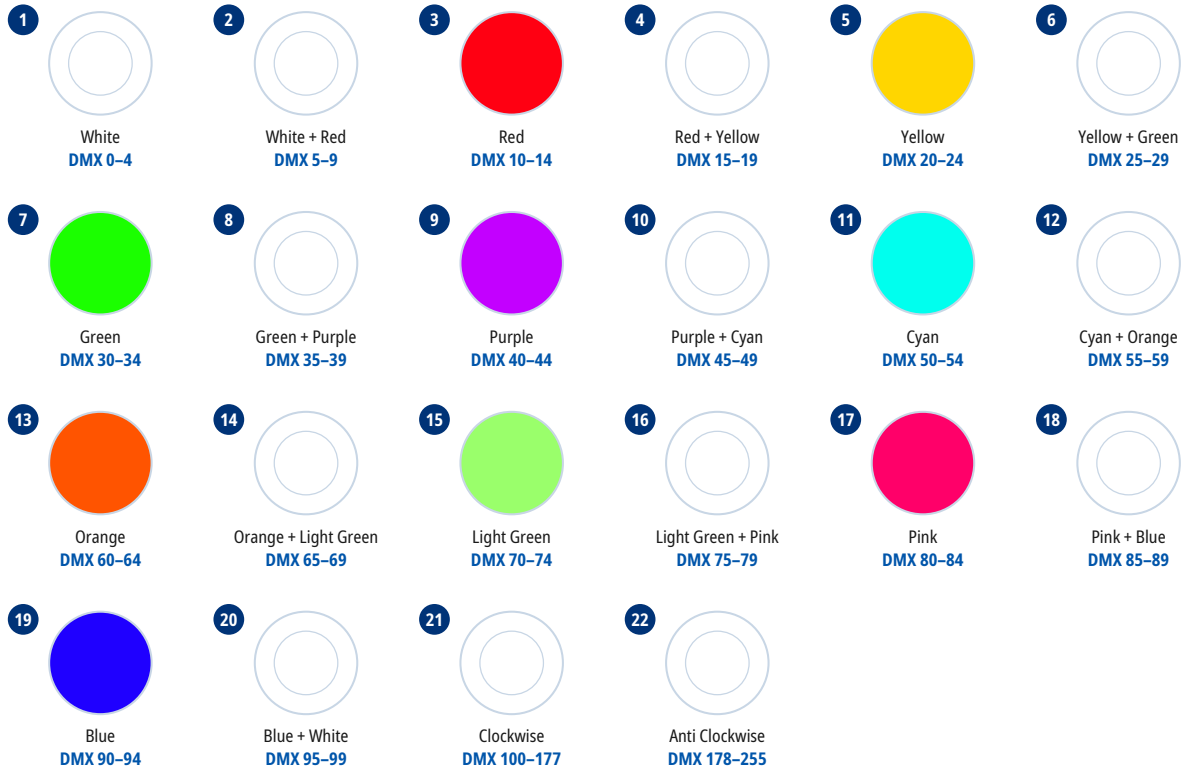
- The device occupies as many consecutive channels in the DMX universe as the selected DMX mode uses, starting at the set start address.
- Number of channels occupied in the DMX mode “20 Channel”: 20.
- Choose start addresses so that the channels of individual devices do not overlap and the last occupied 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 “20 Channel”, you can use, for example, the start addresses 1, 21, 41, 61.
- 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

	16 Channel 19 channels	20 Channel 20 channels
Pan / Tilt	1, 3	1, 3
Dimmer	5	5
Shutter / strobe	6, 17	6
Color wheel	7	7, 18
Gobo wheel	8	8, 20
Prism	9, 10, 12	9–12
Frost	15	15
Focus	13	13
Effects / macros	18, 19	

Color wheel



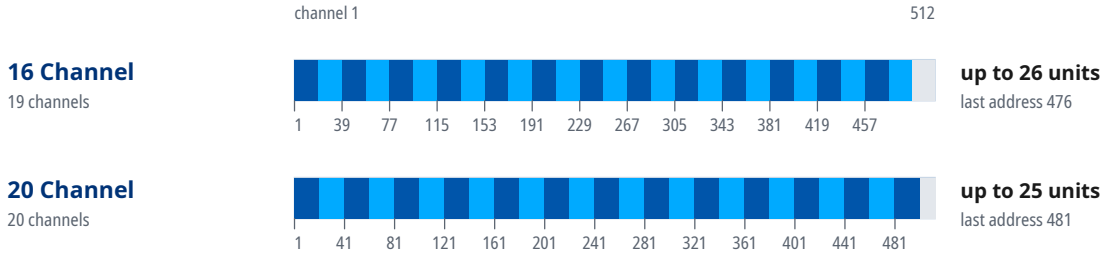
1 White DMX 0–4	2 White + Red DMX 5–9	3 Red DMX 10–14	4 Red + Yellow DMX 15–19	5 Yellow DMX 20–24	6 Yellow + Green DMX 25–29
7 Green DMX 30–34	8 Green + Purple DMX 35–39	9 Purple DMX 40–44	10 Purple + Cyan DMX 45–49	11 Cyan DMX 50–54	12 Cyan + Orange DMX 55–59
13 Orange DMX 60–64	14 Orange + Light Green DMX 65–69	15 Light Green DMX 70–74	16 Light Green + Pink DMX 75–79	17 Pink DMX 80–84	18 Pink + Blue DMX 85–89
19 Blue DMX 90–94	20 Blue + White DMX 95–99	21 Clockwise DMX 100–177	22 Anti Clockwise DMX 178–255		

Gobo wheel

1 Gobo 1	13 Gobo 13	25 Gobo 8 Shake
2 Gobo 2	14 Gobo 14	26 Gobo 9 Shake
3 Gobo 3	15 Gobo 15	27 Gobo 10 Shake
4 Gobo 4	16 White Shake	28 Gobo 11 Shake
5 Gobo 5	17 White Shake 2	29 Gobo 12 Shake
6 Gobo 6	18 Gobo 1 Shake	30 Gobo 13 Shake
7 Gobo 7	19 Gobo 2 Shake	31 Gobo 14 Shake
8 Gobo 8	20 Gobo 3 Shake	32 Gobo 15 Shake
9 Gobo 9	21 Gobo 4 Shake	33 Clockwise
10 Gobo 10	22 Gobo 5 Shake	34 Anti Clockwise
11 Gobo 11	23 Gobo 6 Shake	
12 Gobo 12	24 Gobo 7 Shake	

9 DMX channels

Units in one DMX universe



Start addresses of 20 units in the mode “20 Channel”

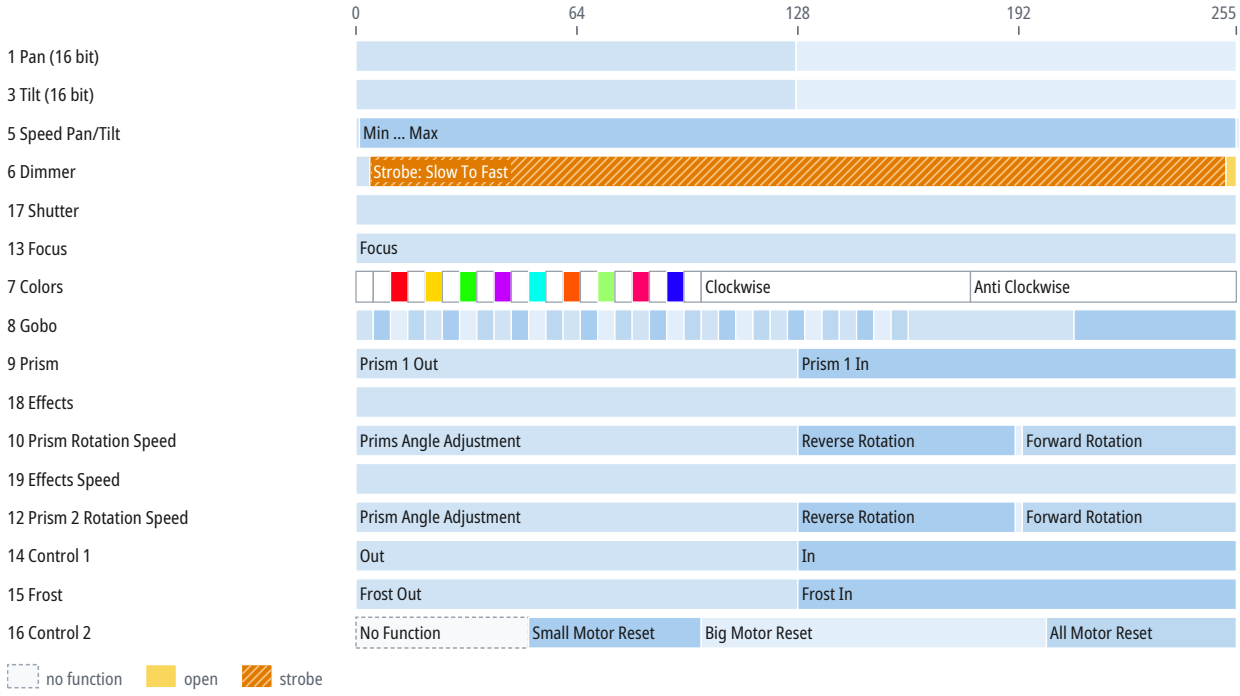
Unit	Start address	Unit	Start address	Unit	Start address	Unit	Start address
1	1	6	101	11	201	16	301
2	21	7	121	12	221	17	321
3	41	8	141	13	241	18	341
4	61	9	161	14	261	19	361
5	81	10	181	15	281	20	381

Mode 16 Channel

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

The GDTF file gives these values for a console's Highlight function: CH 6 Dimmer 255, CH 7 Colors 0.

Channel functions at a glance



CH	Function	DMX	Description
1	Pan	0–127	Pan
		128	Center
		128–255	Pan
2	Pan Fine	0–255	Fine adjustment of CH 1
3	Tilt	0–127	Tilt
		128	Center
		128–255	Tilt
4	Tilt Fine	0–255	Fine adjustment of CH 3
5	Speed Pan/Tilt	0	Min
		1–254	Min ... Max
		255	Max
6	Dimmer	0–3	Off
		4–251	Strobe: Slow To Fast
		252–255	Open
7	Colors	0–4	White
		5–9	White + Red
		10–14	Red
		15–19	Red + Yellow
		20–24	Yellow
		25–29	Yellow + Green
		30–34	Green
		35–39	Green + Purple
		40–44	Purple
		45–49	Purple + Cyan
		50–54	Cyan
		55–59	Cyan + Orange
		60–64	Orange
		65–69	Orange + Light Green
		70–74	Light Green
		75–79	Light Green + Pink
		80–84	Pink
		85–89	Pink + Blue
		90–94	Blue
		95–99	Blue + White
		100–177	Clockwise
		178–255	Anti Clockwise
8	Gobo	0–4	Gobo 1
		5–9	Gobo 2
		10–14	Gobo 3
		15–19	Gobo 4

CH	Function	DMX	Description
8	Gobo (continued)	20–24	Gobo 5
		25–29	Gobo 6
		30–34	Gobo 7
		35–39	Gobo 8
		40–44	Gobo 9
		45–49	Gobo 10
		50–54	Gobo 11
		55–59	Gobo 12
		60–64	Gobo 13
		65–69	Gobo 14
		70–74	Gobo 15
		75–84	White Shake
		85–89	Gobo Shake 1
		90–94	Gobo Shake 2
		95–99	Gobo Shake 3
		100–104	Gobo Shake 4
		105–109	Gobo Shake 5
		110–114	Gobo Shake 6
		115–119	Gobo Shake 7
		120–124	Gobo Shake 8
		125–129	Gobo Shake 9
		130–134	Gobo Shake 10
		135–139	Gobo Shake 11
		140–144	Gobo Shake 12
		145–149	Gobo Shake 13
		150–154	Gobo Shake 14
		155–159	Gobo Shake 15
		160–207	Positive Flow Fast To Slow
		208–255	Reverse Flow Slow To Fast
9	Prism	0–127	Prism 1 Out
		128–255	Prism 1 In
10	Prism Rotation Speed	0–127	Prims Angle Adjustment
		128–190	Reverse Rotation
		191–192	Stop
		193–255	Forward Rotation
12	Prism 2 Rotation Speed	0–127	Prism Angle Adjustment
		128–190	Reverse Rotation
		191–192	Stop
		193–255	Forward Rotation
13	Focus	0–255	Focus
14	Control 1		7 color effect

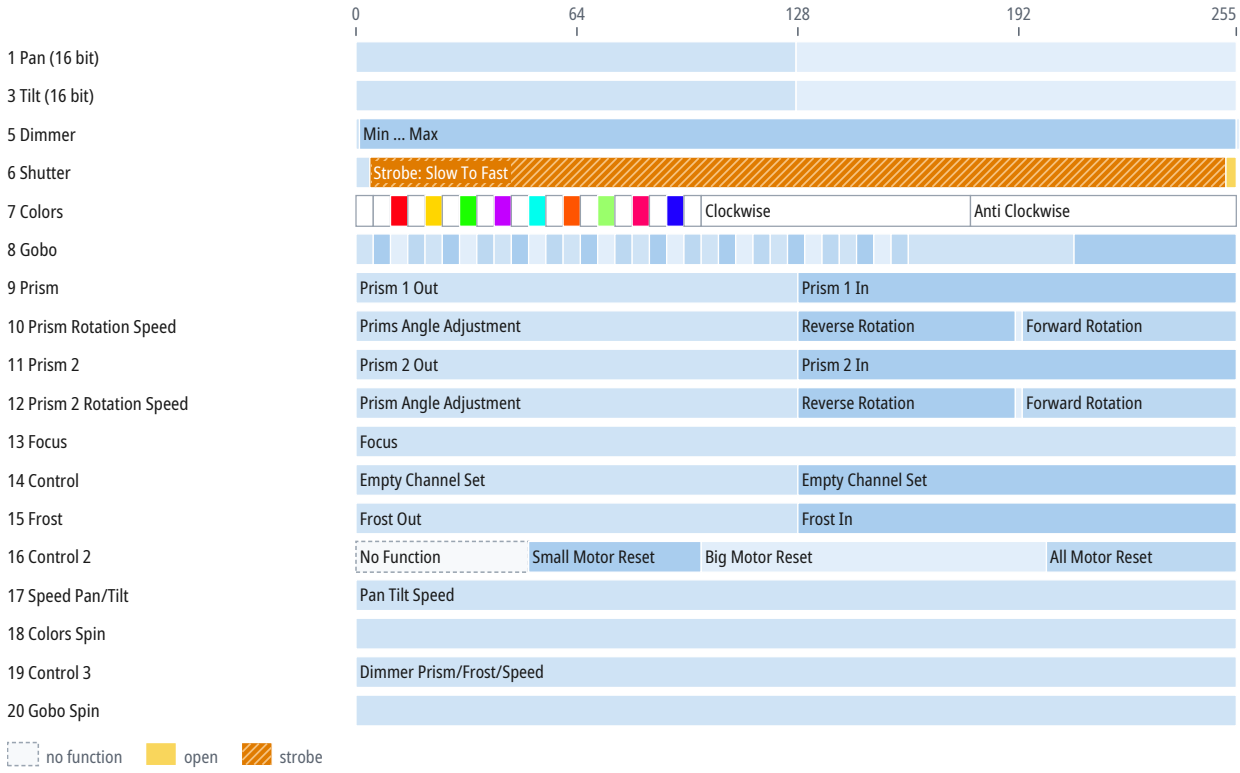
CH	Function	DMX	Description
14	Control 1 (continued)	0–127	Out
		128–255	In
15	Frost	0–127	Frost Out
		128–255	Frost In
16	Control 2	0–49	No Function
		50–99	Small Motor Reset
		100–199	Big Motor Reset
		200–255	All Motor Reset
17	Shutter	0–255	
18	Effects	0–255	
19	Effects Speed	0–255	

Mode 20 Channel

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

If the device receives DMX in this mode but gives no light, check these channels: CH 6 Shutter at 252–255 “Open”. The GDTF file gives these values for a console's Highlight function: CH 5 Dimmer 255, CH 6 Shutter 255, CH 7 Colors 0.

Channel functions at a glance



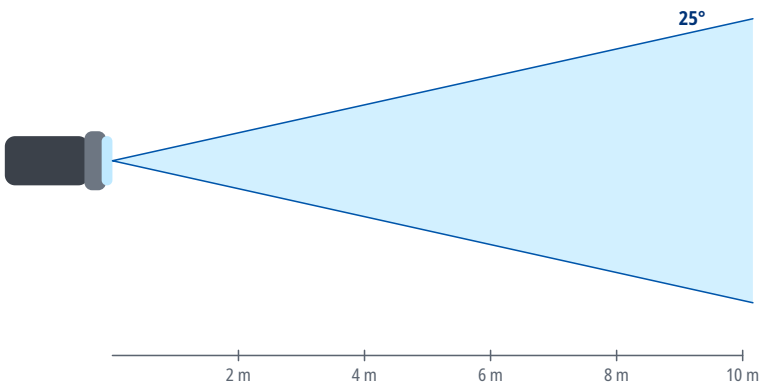
CH	Function	DMX	Description
1	Pan		Same as CH 1 in the mode “16 Channel” (p. 10)
2	Pan Fine	0–255	Fine adjustment of CH 1
3	Tilt		Same as CH 3 in the mode “16 Channel” (p. 10)

CH	Function	DMX	Description
4	Tilt Fine	0–255	Fine adjustment of CH 3
5	Dimmer	0	Min
		1–254	Min ... Max
		255	Max
6	Shutter	0–3	Off
		4–251	Strobe: Slow To Fast
		252–255	Open
7	Colors		Same as CH 7 in the mode “16 Channel” (p. 10)
8	Gobo		Same as CH 8 in the mode “16 Channel” (p. 10)
9	Prism		Same as CH 9 in the mode “16 Channel” (p. 11)
10	Prism Rotation Speed		Same as CH 10 in the mode “16 Channel” (p. 11)
11	Prism 2	0–127	Prism 2 Out
		128–255	Prism 2 In
12	Prism 2 Rotation Speed		Same as CH 12 in the mode “16 Channel” (p. 11)
13	Focus	0–255	Focus
14	Control		7 color effect
		0–255	Empty Channel Set
15	Frost		Same as CH 15 in the mode “16 Channel” (p. 12)
16	Control 2	0–49	No Function
		50–99	Small Motor Reset
		100–199	Big Motor Reset
		200–255	All Motor Reset
17	Speed Pan/Tilt		Pan Tilt Speed
		0–255	Pan Tilt Speed
18	Colors Spin	0–255	
19	Control 3		Dimmer Prism/Frost/Speed
		0–255	Dimmer Prism/Frost/Speed
20	Gobo Spin	0–255	

10 Technical specifications

Parameter	Value
Light	
Light source	LED
LED power	700 W
Luminous flux	1,000 lm
Color temperature	6,000 K
Color rendering index (CRI)	85
Optics	
Beam angle	25°
Movement	
Pan	530°
Tilt	280°
Control	
DMX connection	5-pin XLR IN/OUT, 3-pin XLR IN/OUT
RJ45 connectors	RJ45 IN
Electrical	
Power supply	100–240 V, 50/60 Hz
Power consumption	850 W
Power connectors	powerCON TRUE1 IN/OUT
Dimensions and construction	
Weight	5.6 kg
Operating environment	
Operating temperature	0 to 40 °C

Spot diameter



Distance	Ø 25°
2 m	0.89 m
4 m	1.8 m
6 m	2.7 m
8 m	3.5 m
10 m	4.4 m
15 m	6.7 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.