DMX REFERENCE

400W BSWF LED Cut

EB Lighting 400W BSW LED Cut

EB Lighting



Manufacturer	EB Lighting
GDTF file	EB_Lighting_400W_BSWF_LED_Cut_169032.gdtf
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1 About this manual

This document describes the EB Lighting 400W BSW LED Cut by EB Lighting. It was compiled from the GDTF file EB_Lighting_400W_BSWF_LED_Cut_169032.gdtf from the GDTF-Share library.

File revision: “2-1-0”.

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 EB 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

DMX modes

Mode	Channels	Units in one universe	First start addresses
30ch	30	17	1, 31, 61, 91, …

No light? Check these channels

- 30ch: CH 6 Dimmer above 0; CH 7 Shutter at 104–107 or 208–212 or 252–255 “Open”



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

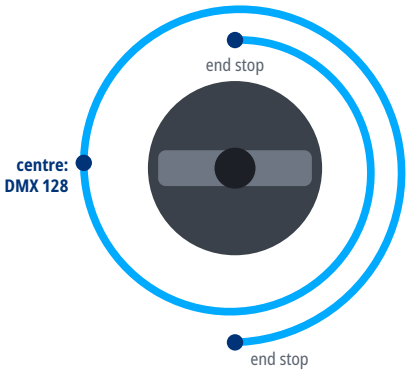
Description in the GDTF file

“400W LED Beam/Spot/Wash with CMY, CTO, colour wheel, 2 gobo wheels, 8-facet prism, frost, framing shutters”

Range of movement

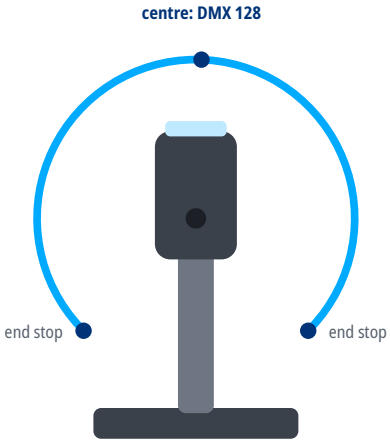
Pan 540°

top view



Tilt 270°

side view



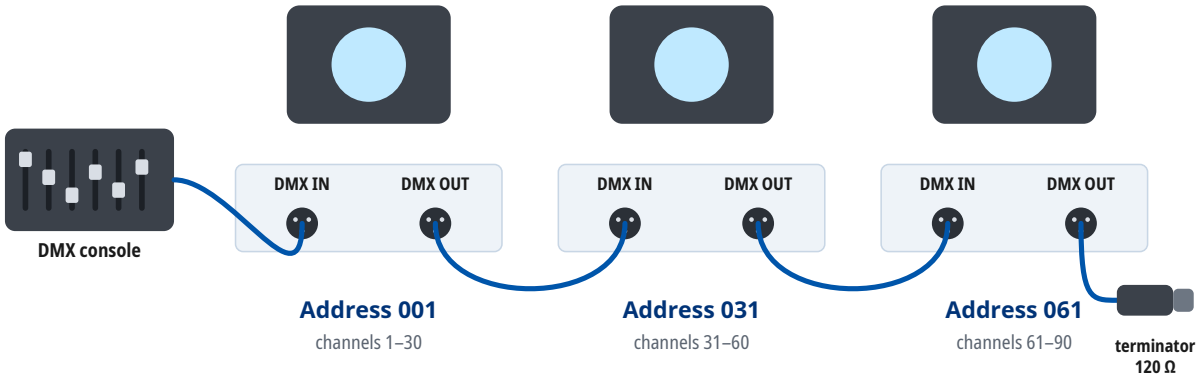
5 Installation

> ⚠ **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.
> - 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 30ch: every unit occupies 30 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 “30ch”: 30.
- 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 “30ch”, you can use, for example, the start addresses 1, 31, 61, 91.
- 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

	30ch 30 channels
Pan / Tilt	1, 3
Dimmer	6
Shutter / strobe	7
Color mixing	8–10
Color temperature	11
Color wheel	12
Gobo wheel	13, 14
Gobo rotation	15
Prism	16, 17
Frost	19
Zoom	20
Focus	21

Color wheel



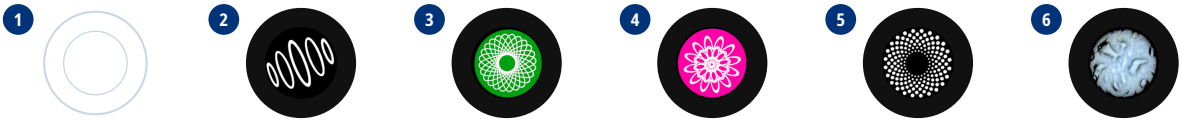
1 White DMX 0–4
2 White / Red DMX 5–9
3 Red / Yellow DMX 15–19
4 Yellow / Blue DMX 25–29
5 Blue / Green DMX 35–39
6 Green / Magenta DMX 45–49
7 Magenta / Orange DMX 55–59

Gobo wheel 1



1 Gobo: Open DMX 0–4
2 Gobo 1-1 DMX 5–9
3 Gobo 1-2 DMX 10–14
4 Gobo 1-3 DMX 15–19
5 Gobo 1-4 DMX 20–24
6 Gobo 1-5 DMX 25–29
7 Gobo 1-6 DMX 30–34
8 Gobo 1-7 DMX 35–39
9 Gobo 1-8 DMX 40–44
10 Gobo 1-9 DMX 45–49

Gobo wheel 2



1 Gobo: Open
DMX 0–19

2 Gobo 2-1
DMX 20–39

3 Gobo 2-2
DMX 40–59

4 Gobo 2-3
DMX 60–79

5 Gobo 2-4
DMX 80–99

6 Gobo 2-5
DMX 100–119

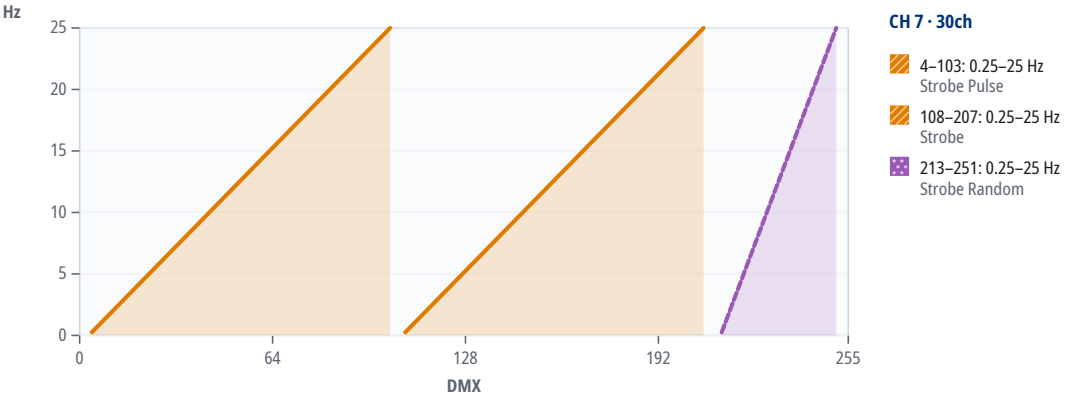
Prism



1 Open
DMX 0–127

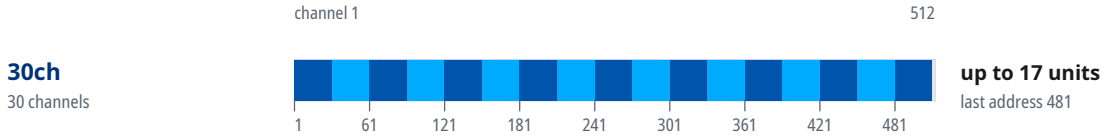
2 8 facets
8 Facet
DMX 128–255

Strobe rate



9 DMX channels

Units in one DMX universe



Start addresses of 20 units in the mode “30ch”

Unit	Start address	Unit	Start address	Unit	Start address	Unit	Start address
1	1	6	151	11	301	16	451
2	31	7	181	12	331	17	481
3	61	8	211	13	361	18	U2 · 1
4	91	9	241	14	391	19	U2 · 31
5	121	10	271	15	421	20	U2 · 61

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 30ch

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 Dimmer above 0; CH 7 Shutter at 104–107 or 208–212 or 252–255 “Open”. The GDTF file gives these values for a console's Highlight function: CH 6 Dimmer 255, CH 7 Shutter 255, CH 12 Colors 0.

Channel functions at a glance



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

CH	Function	DMX	Description
4	Tilt Fine	0–255	Fine adjustment of CH 3
5	Speed Pan/Tilt		Pan Tilt Speed
		0	Min
		1–254	Min ... Max
		255	Max
6	Dimmer	0	Closed
		1–254	Closed ... Open
		255	Open
7	Shutter	0–3	Closed
		4–103	Strobe Pulse (0.25–25 Hz)
		104–107	Open 1
		108–207	Strobe (0.25–25 Hz)
		208–212	Open 2
		213–251	Strobe Random (0.25–25 Hz)
		252–255	Open
8	Cyan	0	Off
		1–254	Off ... Full
		255	Full
9	Magenta	0	Off
		1–254	Off ... Full
		255	Full
10	Yellow	0	Off
		1–254	Off ... Full
		255	Full
11	CTO	0	6500K
		1–254	6500K ... 2500K
		255	2500K
12	Colors	0–4	White
		5–9	White / Red
		10–14	Red
		15–19	Red / Yellow
		20–24	Yellow
		25–29	Yellow / Blue
		30–34	Blue
		35–39	Blue / Green
		40–44	Green
		45–49	Green / Magenta
		50–54	Magenta
		55–59	Magenta / Orange
		60–64	Orange
		65–69	Orange / CTO
		70–74	White *

CH	Function	DMX	Description
12	Colors (continued)	75–79	Red / Yellow *
		80–84	Yellow *
		85–89	Yellow / Blue *
		90–94	Blue *
		95–99	Blue / Green *
		100–104	Green *
		105–109	Green / Magenta *
		110–114	Magenta *
		115–119	Magenta / Orange *
		120–124	Orange *
		125–129	Orange / CTO *
		130–134	White / Red *
		135	Spin slow
		136–254	Spin 1-100% (1.5–178.5 °/s)
		255	Spin fast
13	Gobo	0–4	Gobo: Open
		5–9	Gobo 1-1
		10–14	Gobo 1-2
		15–19	Gobo 1-3
		20–24	Gobo 1-4
		25–29	Gobo 1-5
		30–34	Gobo 1-6
		35–39	Gobo 1-7
		40–44	Gobo 1-8
		45–49	Gobo 1-9
		50–59	Gobo 1-1 *
		60–69	Gobo 1-2 *
		70–79	Gobo 1-3 *
		80–89	Gobo 1-4 *
		90–99	Gobo 1-5 *
		100–109	Gobo 1-6 *
		110–119	Gobo 1-7 *
		120–129	Gobo 1-8 *
		130–139	Gobo 1-9 *
		140	Spin CCW fast
		141–195	Spin CCW (177.1–4.7 °/s)
		196–199	Gobo 1 Spin: Stop
		200–254	Spin CW (1.8–177.1 °/s)
		255	Spin CW fast
14	Gobo 2	0–19	Gobo: Open
		20–39	Gobo 2-1
		40–59	Gobo 2-2

CH	Function	DMX	Description
14	Gobo 2 (continued)	60–79	Gobo 2-3
		80–99	Gobo 2-4
		100–119	Gobo 2-5
		120–129	Gobo 2-1 *
		130–139	Gobo 2-2 *
		140–149	Gobo 2-3 *
		150–159	Gobo 2-4 *
		160–169	Gobo 2-5 *
		170	Spin slow
		171–254	Spin 1-100% (2.1–177.9 °/s)
		255	Spin fast
15	Gobo 2 Rotation	0	0 deg
		1–126	0 deg ... 360 deg
		127	360 deg
		128–190	Gobo 2 Rotate: Forward (180–4.3 °/s)
		191	Gobo 2 Rotate: Stop
		192–255	Reversed (1.4–180 °/s)
16	Prism	0–127	Open
		128–255	8 Facet
17	Prism Rotation	0	0 deg
		1–126	0 deg ... 360 deg
		127	360 deg
		128	Rotate CCW fast
		129–189	Rotate CCW (177.1–4.7 °/s)
		190–193	Prism Rotate: Stop
		194–254	Rotate CW (1.8–177.1 °/s)
		255	Rotate CW fast
18	CRI Mode	0	Off
		1–254	Off ... Full
		255	Full
19	Frost	0–127	Open
		128–255	Inserted
20	Zoom	0	Narrow
		1–254	Narrow ... Wide
		255	Wide
21	Focus	0	Min
		1–254	Min ... Max
		255	Max
22	Blade 1 A	0	Out
		1–254	Out ... In
		255	In
23	Blade 1 B	0	Out

CH	Function	DMX	Description
23	Blade 1 B (continued)	1–254	Out … In
		255	In
24	Blade 2 A	0	Out
		1–254	Out … In
		255	In
25	Blade 2 B	0	Out
		1–254	Out … In
		255	In
26	Blade 3 A	0	Out
		1–254	Out … In
		255	In
27	Blade 3 B	0	Out
		1–254	Out … In
		255	In
28	Blade 4 A	0	Out
		1–254	Out … In
		255	In
29	Blade 4 B	0	Out
		1–254	Out … In
		255	In
30	Reset	0–250	No Function
		251–255	Reset

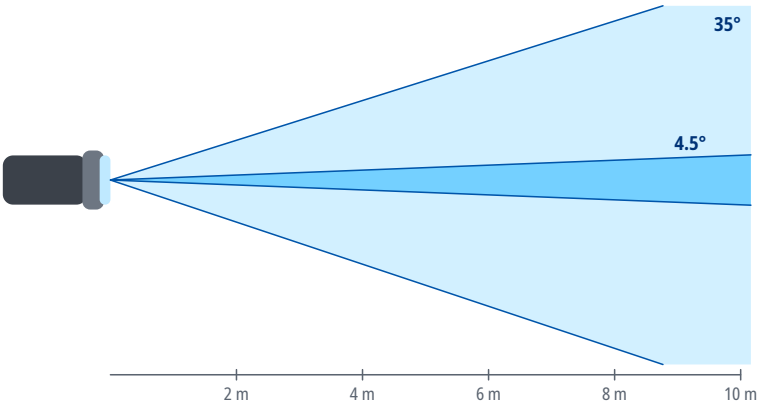
10 Technical specifications

Parameter	Value
Light	
Light source	LED
LED power	400 W
Luminous flux	10,000 lm
Color temperature	6,500 K
Color rendering index (CRI)	70
Optics	
Zoom	4.5–35°
Movement	
Pan	540°
Tilt	270°
Operating environment	
Operating temperature	0 to 40 °C

Speeds and ranges

Parameter	Value
Color temperature range	2500–6500 K
Strobe frequency	0.25–25 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 2 rotation	up to 180 °/s (30 rpm)
Prism rotation	up to 180 °/s (30 rpm)

Spot diameter



Distance	Ø 4.5°	Ø 35°
2 m	0.16 m	1.3 m
4 m	0.31 m	2.5 m
6 m	0.47 m	3.8 m
8 m	0.63 m	5 m
10 m	0.79 m	6.3 m
15 m	1.2 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.