DMX REFERENCE

LED SPOT 30L

MARK



Manufacturer	MARK
GDTF file	MARK_LED_SPOT_30L_109471.gdtf
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1 About this manual

This document describes the LED SPOT 30L by MARK. It was compiled from the GDTF file MARK_LED_SPOT_30L_109471.gdtf from the GDTF-Share library.

File revision: “Version_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 MARK; 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	2 kg

DMX modes

Mode	Channels	Units in one universe	First start addresses
10 CHANNELS	10	51	1, 11, 21, 31, ...
12 CHANNELS	12	42	1, 13, 25, 37, ...

No light? Check these channels

- 10 CHANNELS: CH 5 Strobe at 0–9 or 250–255 “Open”; CH 6 Dimmer above 0
- 12 CHANNELS: CH 7 Strobe at 0–9 or 250–255 “Open”; CH 8 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

Description in the GDTF file

“LED SPOT 30L es una cabeza móvil tipo Spot, con 1 LED blanco de 30 W y 12 LEDs RGB creando un anillo de color alrededor de la lente. Incorpora 1 rueda de color con 7 colores + spot, efecto Flow y rainbow, y 1 rueda de gobos con 7 gobos + spot con efecto shake. Los LEDs del anillo, crean un efecto adicional con colores fijos o varios efectos con movimiento y cambio de color. Dispone de una pantalla con toda la información y los botones para navegar por los menús, seleccionando parámetros como: Pan / Tilt reverse, inversión de pantalla, sensibilidad de audio o función de reinicio. Incluye 2 modos DMX (10 y 12 canales) con movimientos PAN/TILT, control de gobo y ruedas de color, función estrobo y cambio de color del anillo.”

5 Installation

⚠ WARNING

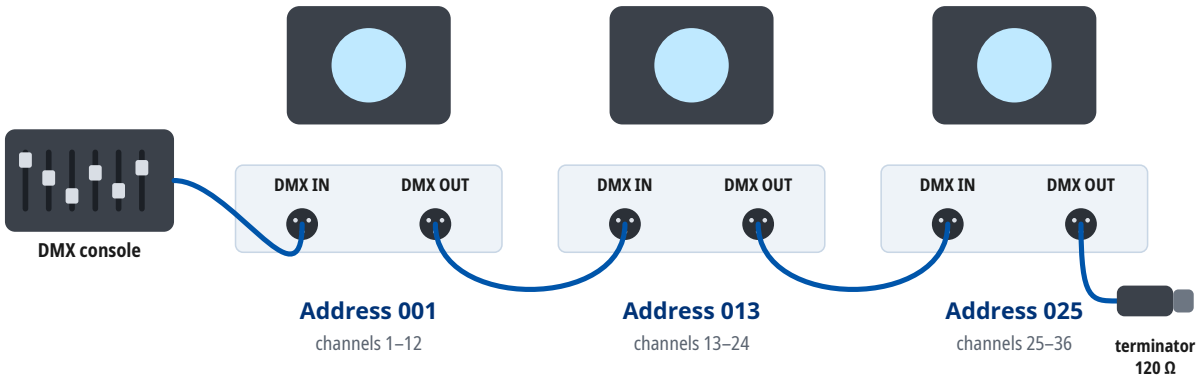
- Rigging must be carried out only by qualified persons in accordance with applicable regulations, in particular those for work at height.
- The supporting structure and fixings must safely carry the weight of all suspended devices; verify their load capacity in advance.
- Weight of the device: 2 kg.
- 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 12 CHANNELS: every unit occupies 12 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 “12 CHANNELS”: 12.
- 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 “12 CHANNELS”, you can use, for example, the start addresses 1, 13, 25, 37.
- 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

	10 CHANNELS 10 channels	12 CHANNELS 12 channels
Pan / Tilt	1, 2	1, 3
Pan / Tilt resolution	8 bit	16 bit
Dimmer	6	8
Shutter / strobe	5	7
Color wheel	3, 10	5, 12
Gobo wheel	4	6
Effects / macros	8	10

Color wheel 1

1 White
DMX 0–9

2 Red
DMX 10–19

3 Green
DMX 20–29

4 Blue
DMX 30–39

5 Yellow
DMX 40–49

6 Amber
DMX 50–59

7 Cyan
DMX 60–69

8 Magenta
DMX 70–79

Gobo wheel

1 Gobo: Open
DMX 0–7

2 
Gobo 1
DMX 8–15

3 
Gobo 2
DMX 16–23

4 
Gobo 3
DMX 24–31

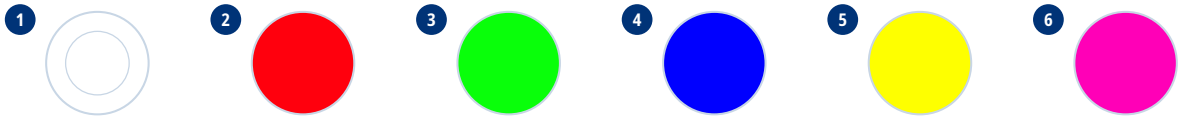
5 
Gobo 4
DMX 32–39

6 
Gobo 5
DMX 40–47

7 
Gobo 6
DMX 48–55

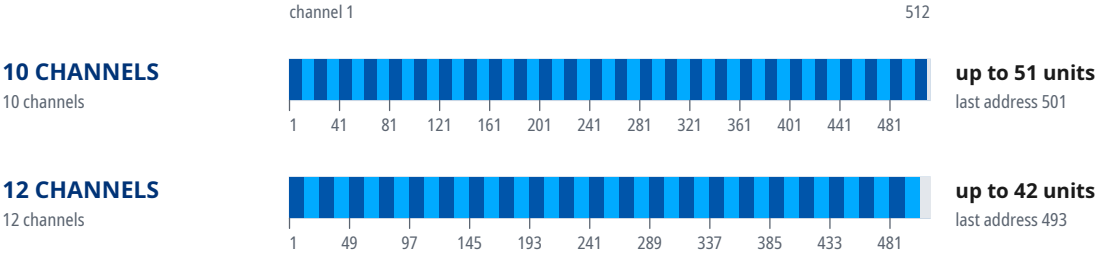
8 
Gobo 7
DMX 56–64

Color wheel 2



9 DMX channels

Units in one DMX universe



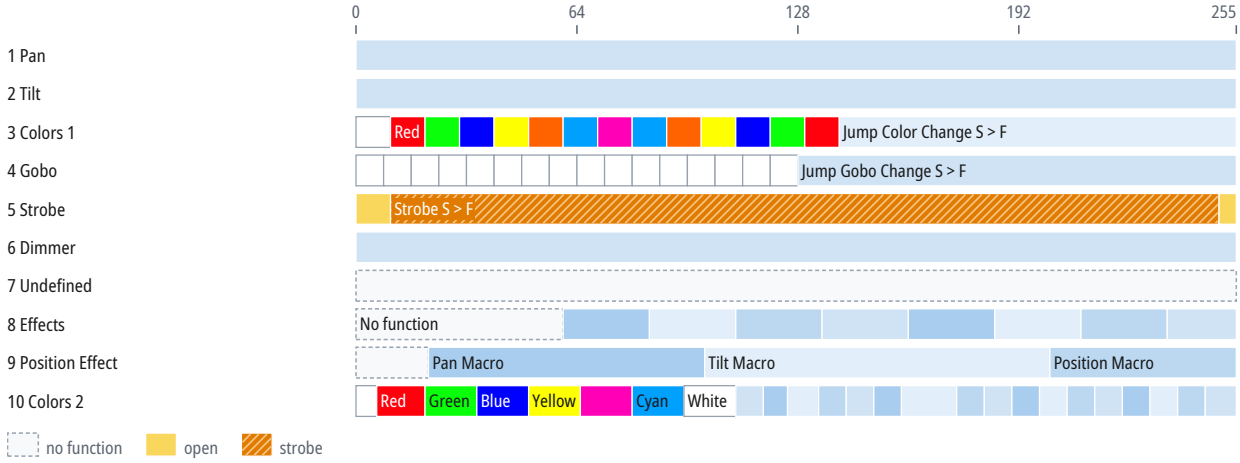
Start addresses of 20 units in the mode “12 CHANNELS”

Unit	Start address	Unit	Start address	Unit	Start address	Unit	Start address
1	1	6	61	11	121	16	181
2	13	7	73	12	133	17	193
3	25	8	85	13	145	18	205
4	37	9	97	14	157	19	217
5	49	10	109	15	169	20	229

Mode 10 CHANNELS

If the device receives DMX in this mode but gives no light, check these channels: CH 5 Strobe at 0–9 or 250–255 “Open”; CH 6 Dimmer above 0. The GDTF file gives these values for a console's Highlight function: CH 3 Colors 1 0, CH 5 Strobe 0, CH 6 Dimmer 255.

Channel functions at a glance



CH	Function	DMX	Description
1	Pan	0–255	
2	Tilt	0–255	
3	Colors 1	0–9	White
		10–19	Red
		20–29	Green
		30–39	Blue
		40–49	Yellow
		50–59	Amber
		60–69	Cyan
		70–79	Magenta
		80–89	Magenta + Cyan
		90–99	Cyan + Amber
		100–109	Amber + Yellow
		110–119	Yellow + Blue
		120–129	Blue + Green
		130–139	Green + Red
		140–255	Jump Color Change S > F
4	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

CH	Function	DMX	Description
4	Gobo (continued)	56–63	Gobo 7
		64–71	Gobo Shake: Open
		72–79	Gobo 1 Shake S > F
		80–87	Gobo 2 Shake S > F
		88–95	Gobo 3 Shake S > F
		96–103	Gobo 4 Shake S > F
		104–111	Gobo 5 Shake S > F
		112–119	Gobo 6 Shake S > F
		120–127	Gobo 7 Shake S > F
		128–255	Jump Gobo Change S > F
5	Strobe	0–9	Open
		10–249	Strobe S > F
		250–255	Open
6	Dimmer	0–255	
7	Undefined	0–255	
8	Effects	0–59	No function
		60–84	Auto Mode 3
		85–109	Auto Mode 2
		110–134	Auto Mode 1
		135–159	Auto Mode 0
		160–184	Sound Mode 3
		185–209	Sound Mode 2
		210–234	Sound Mode 1
		235–255	Sound Mode 0
9	Position Effect	0–20	No function
		21–100	Pan Macro
		101–200	Tilt Macro
		201–255	Position Macro
10	Colors 2	0–5	Color Ring: Close
		6–19	Red
		20–34	Green
		35–49	Blue
		50–64	Yellow
		65–79	Magenta
		80–94	Cyan
		95–109	White
		110–117	Jump Color Change
		118–124	2 Red LED CCW
		125–133	2 Green LED CCW
		134–141	2 Blue LED CCW
		142–149	2 Yellow LED CCW
		150–157	2 Magenta LED CCW

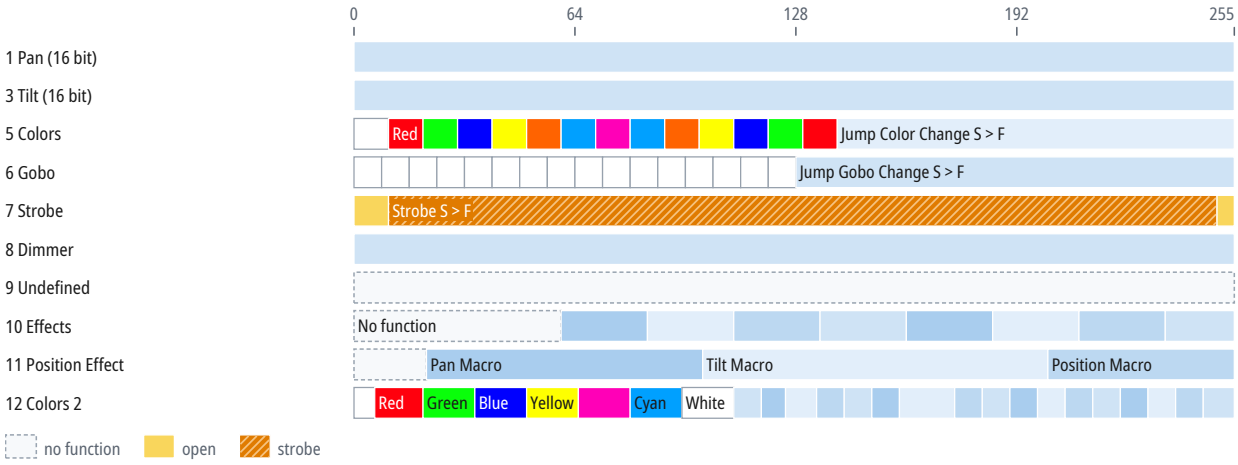
CH	Function	DMX	Description
10	Colors 2 (continued)	158–173	2 White LED CCW
		174–181	Macro 1
		182–189	Macro 2
		190–197	Macro 3
		198–205	Macro 4
		206–213	Macro 5
		214–221	Macro 6
		222–229	Macro 7
		230–237	Macro 8
		238–245	Macro 9
		246–255	Macro 10

Mode 12 CHANNELS

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 7 Strobe at 0–9 or 250–255 “Open”; CH 8 Dimmer above 0. The GDTF file gives these values for a console's Highlight function: CH 5 Colors 0, CH 7 Strobe 0, CH 8 Dimmer 255.

Channel functions at a glance



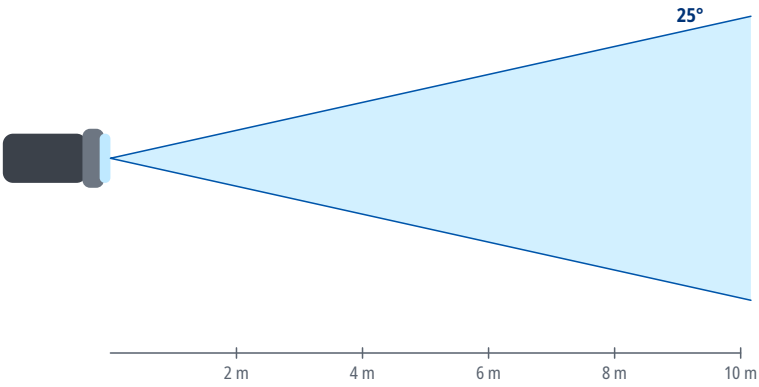
CH	Function	DMX	Description
1	Pan	0–255	
2	Pan Fine	0–255	Fine adjustment of CH 1
3	Tilt	0–255	
4	Tilt Fine	0–255	Fine adjustment of CH 3
5	Colors	0–9	White
		10–19	Red
		20–29	Green
		30–39	Blue
		40–49	Yellow
		50–59	Amber
		60–69	Cyan

CH	Function	DMX	Description
5	Colors (continued)	70–79	Magenta
		80–89	Magenta + Cyan
		90–99	Cyan + Amber
		100–109	Amber + Yellow
		110–119	Yellow + Blue
		120–129	Blue + Green
		130–139	Green + Red
		140–255	Jump Color Change S > F
6	Gobo		Same as CH 4 in the mode “10 CHANNELS” (p. 9)
7	Strobe		Same as CH 5 in the mode “10 CHANNELS” (p. 10)
8	Dimmer	0–255	
9	Undefined	0–255	
10	Effects		Same as CH 8 in the mode “10 CHANNELS” (p. 10)
11	Position Effect		Same as CH 9 in the mode “10 CHANNELS” (p. 10)
12	Colors 2	0–5	Color Ring: Close
		6–19	Red
		20–34	Green
		35–49	Blue
		50–64	Yellow
		65–79	Magenta
		80–94	Cyan
		95–109	White
		110–117	Jump Color Change
		118–124	2 Red LED CCW
		125–133	2 Green LED CCW
		134–141	2 Blue LED CCW
		142–149	2 Yellow LED CCW
		150–157	2 Magenta LED CCW
		158–173	2 White LED CCW
		174–181	Macro 1
		182–189	Macro 2
		190–197	Macro 3
		198–205	Macro 4
		206–213	Macro 5
		214–221	Macro 6
		222–229	Macro 7
		230–237	Macro 8
		238–245	Macro 9
		246–255	Macro 10

10 Technical specifications

Parameter	Value
Weight	2 kg
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.

Problem	Remedy
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.