DMX REFERENCE

DS1

Digital Sputnik DS1

Digital Sputnik



Manufacturer	Digital Sputnik
GDTF file	Digital_Sputnik_DS1_78281.gdtf
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1 About this manual

This document describes the Digital Sputnik DS1 by Digital Sputnik. It was compiled from the GDTF file Digital_Sputnik_DS1_78281.gdtf from the GDTF-Share library.

File revision: “Revision 2 - v2_67_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 Digital Sputnik; 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
ITSH16	10	51	1, 11, 21, 31, ...
ITSH8	5	102	1, 6, 11, 16, ...
XFade16	16	32	1, 17, 33, 49, ...
XFade8	9	56	1, 10, 19, 28, ...
iRGB8	6	85	1, 7, 13, 19, ...
RGB8	4	128	1, 5, 9, 13, ...
ARRI6	20	25	1, 21, 41, 61, ...
ARRI1	12	42	1, 13, 25, 37, ...

No light? Check these channels

- ITSH16: CH 1 Dimmer above 0
- ITSH8: CH 1 Dimmer above 0
- XFade16: CH 1 Dimmer above 0
- XFade8: CH 1 Dimmer above 0
- iRGB8: CH 1 Dimmer above 0
- ARRI6: CH 1 Dimmer above 0
- ARRI1: CH 1 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.

4 Installation

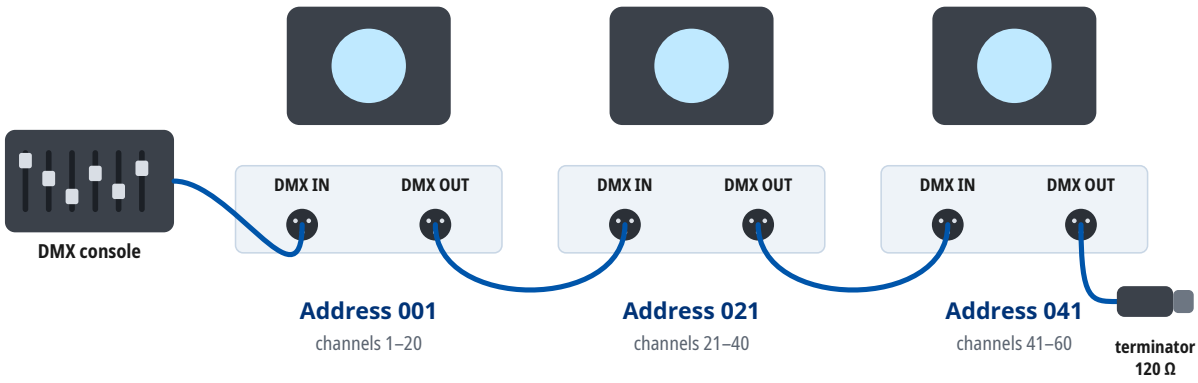
⚠ WARNING

- 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.

5 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 ARRI6: 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.

6 Operation

Setting the DMX address

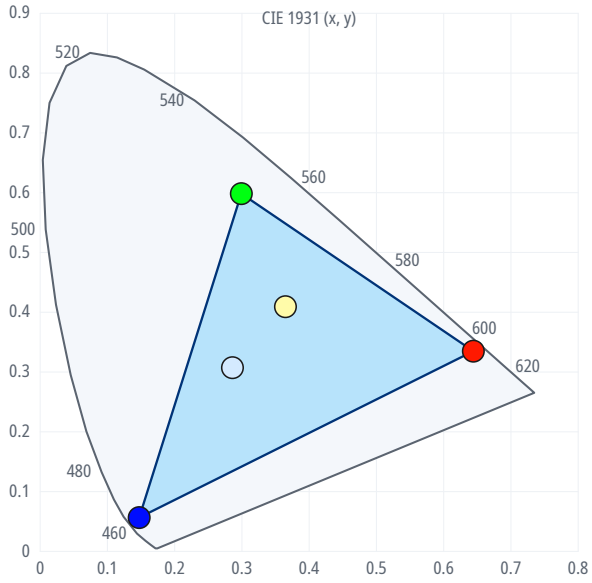
- The device occupies as many consecutive channels in the DMX universe as the selected DMX mode uses, starting at the set start address.
- Number of channels occupied in the DMX mode “ARRI6”: 20.
- Choose start addresses so that the channels of individual devices do not overlap and the last occupied 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 “ARRI6”, 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.

7 Functions at a glance

Functions in each DMX mode

	ITSH16 10 channels	ITSH8 5 channels	XFade16 16 channels	XFade8 9 channels	iRGB8 6 channels	RGB8 4 channels	ARRI6 20 channels	ARRI1 12 channels
Dimmer	1	1	1	1	1		1	1
Dimmer resolution	16 bit	8 bit	16 bit	8 bit	8 bit		16 bit	8 bit
Color mixing			4× (9–15)	5–8	2–4	1–3	4× (9–15)	5–8
Color temperature	3	2	3	2	5	4	3	2

LED colors and the colors they mix



LED	x	y
Red	0.644	0.335
Green	0.299	0.598
Blue	0.147	0.057
Warm White	0.365	0.409
Cool White	0.286	0.307

The shaded area holds the colors the LEDs can mix; the dots are the LED colors the GDTF file states.

8 DMX channels

Units in one DMX universe



Start addresses of 20 units in the mode “ARRI6”

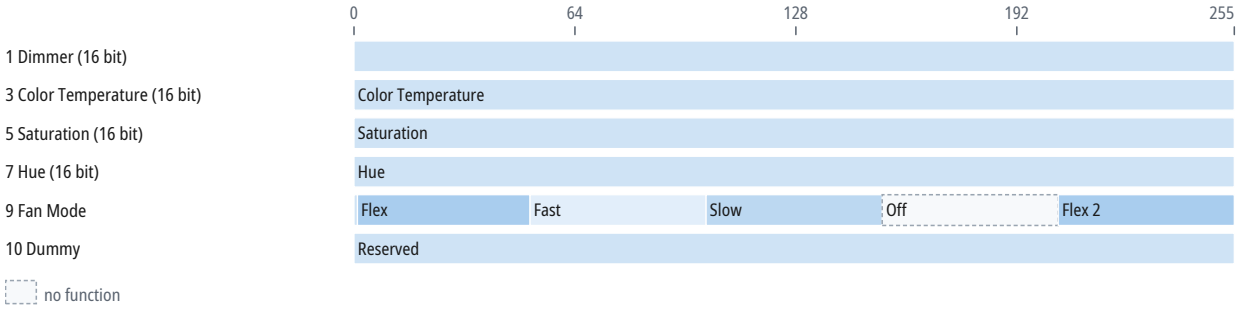
Unit	Start address	Unit	Start address	Unit	Start address	Unit	Start address
1	1	6	101	11	201	16	301
2	21	7	121	12	221	17	321
3	41	8	141	13	241	18	341
4	61	9	161	14	261	19	361
5	81	10	181	15	281	20	381

Mode ITSH16

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 1 Dimmer above 0. The GDTF file gives these values for a console's Highlight function: CH 1 Dimmer 255, CH 3 Color Temperature 255.

Channel functions at a glance

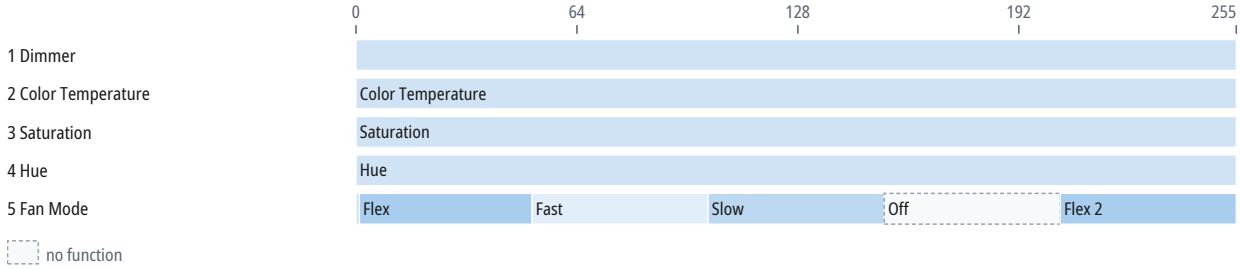


CH	Function	DMX	Description
1	Dimmer	0–255	
2	Dimmer Fine	0–255	Fine adjustment of CH 1
3	Color Temperature	0–255	Color Temperature (1500–10000 K)
4	Color Temperature Fine	0–255	Fine adjustment of CH 3
5	Saturation	0–255	Saturation
6	Saturation Fine	0–255	Fine adjustment of CH 5
7	Hue	0–255	Hue
8	Hue Fine	0–255	Fine adjustment of CH 7
9	Fan Mode	0	Manual
		1–50	Flex
		51–101	Fast
		102–152	Slow
		153–203	Off
		204–255	Flex 2
10	Dummy	0–255	Reserved

Mode ITSH8

If the device receives DMX in this mode but gives no light, check these channels: CH 1 Dimmer above 0. The GDTF file gives these values for a console's Highlight function: CH 1 Dimmer 255, CH 2 Color Temperature 255.

Channel functions at a glance



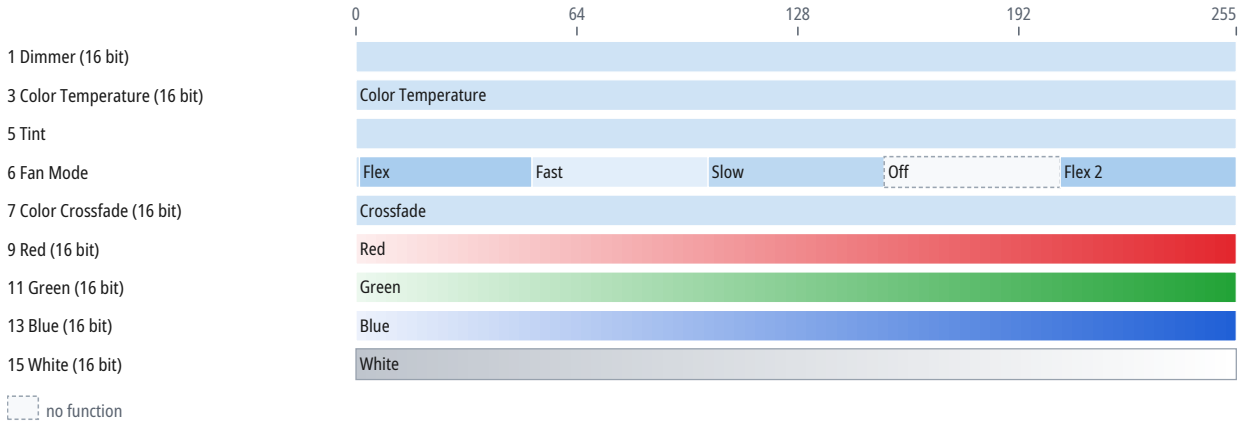
CH	Function	DMX	Description
1	Dimmer	0–255	
2	Color Temperature	0–255	Color Temperature (1500–10000 K)
3	Saturation	0–255	Saturation
4	Hue	0–255	Hue
5	Fan Mode		Same as CH 9 in the mode “ITSH16” (p. 8)

Mode XFade16

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 1 Dimmer above 0. The GDTF file gives these values for a console's Highlight function: CH 1 Dimmer 0, CH 3 Color Temperature 255, CH 15 White 255.

Channel functions at a glance



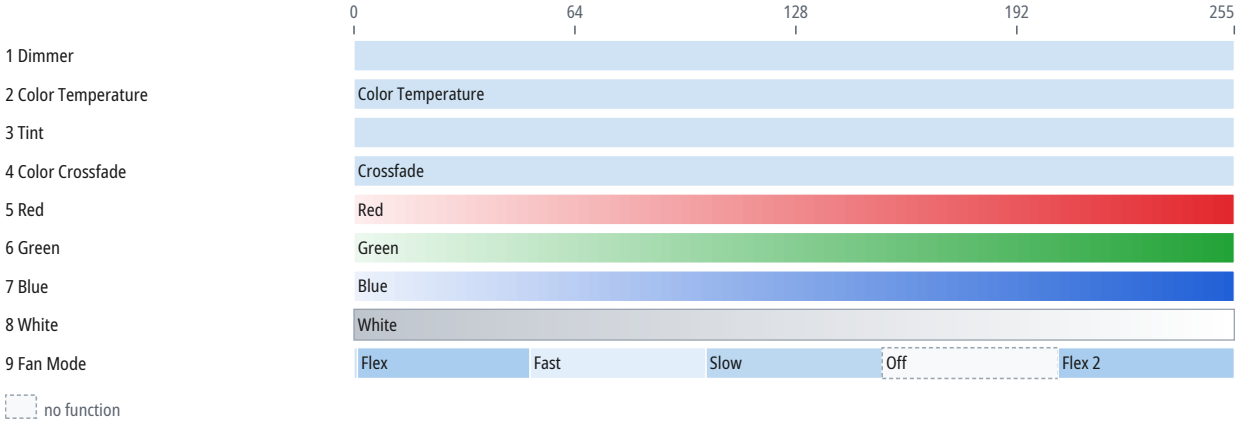
CH	Function	DMX	Description
1	Dimmer	0–255	
2	Dimmer Fine	0–255	Fine adjustment of CH 1
3	Color Temperature	0–255	Color Temperature (1500–10000 K)
4	Color Temperature Fine	0–255	Fine adjustment of CH 3
5	Tint	0–255	

CH	Function	DMX	Description
6	Fan Mode		Same as CH 9 in the mode “ITSH16” (p. 8)
7	Color Crossfade	0–255	Crossfade
8	Color Crossfade Fine	0–255	Fine adjustment of CH 7
9	Red	0–255	Red
10	Red Fine	0–255	Fine adjustment of CH 9
11	Green	0–255	Green
12	Green Fine	0–255	Fine adjustment of CH 11
13	Blue	0–255	Blue
14	Blue Fine	0–255	Fine adjustment of CH 13
15	White	0–255	White
16	White Fine	0–255	Fine adjustment of CH 15

Mode XFade8

If the device receives DMX in this mode but gives no light, check these channels: CH 1 Dimmer above 0. The GDTF file gives these values for a console's Highlight function: CH 1 Dimmer 0, CH 2 Color Temperature 255, CH 8 White 255.

Channel functions at a glance

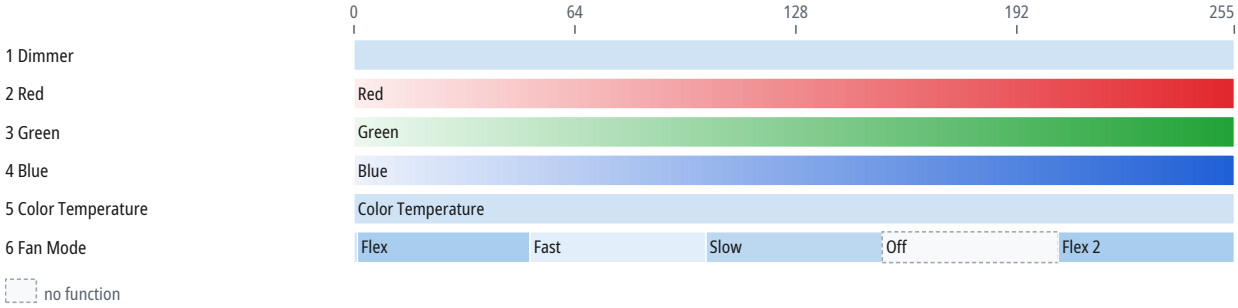


CH	Function	DMX	Description
1	Dimmer	0–255	
2	Color Temperature	0–255	Color Temperature (1500–10000 K)
3	Tint	0–255	
4	Color Crossfade	0–255	Crossfade
5	Red	0–255	Red
6	Green	0–255	Green
7	Blue	0–255	Blue
8	White	0–255	White
9	Fan Mode		Same as CH 9 in the mode “ITSH16” (p. 8)

Mode iRGB8

If the device receives DMX in this mode but gives no light, check these channels: CH 1 Dimmer above 0. The GDTF file gives these values for a console's Highlight function: CH 1 Dimmer 0, CH 5 Color Temperature 255.

Channel functions at a glance

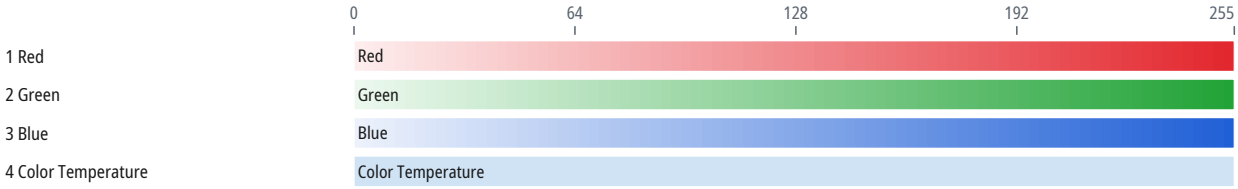


CH	Function	DMX	Description
1	Dimmer	0–255	
2	Red	0–255	Red
3	Green	0–255	Green
4	Blue	0–255	Blue
5	Color Temperature	0–255	Color Temperature (1500–10000 K)
6	Fan Mode		Same as CH 9 in the mode “ITSH16” (p. 8)

Mode RGB8

The GDTF file gives these values for a console's Highlight function: CH 4 Color Temperature 255.

Channel functions at a glance



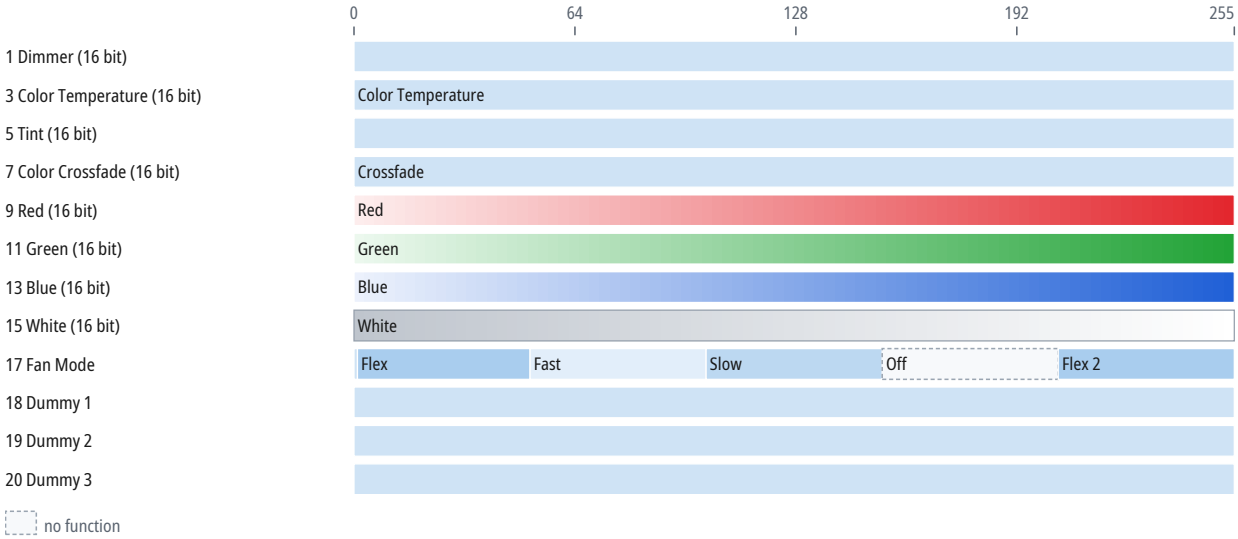
CH	Function	DMX	Description
1	Red	0–255	Red
2	Green	0–255	Green
3	Blue	0–255	Blue
4	Color Temperature	0–255	Color Temperature (1500–10000 K)

Mode ARRI6

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 1 Dimmer above 0. The GDTF file gives these values for a console's Highlight function: CH 1 Dimmer 0, CH 3 Color Temperature 255, CH 15 White 255.

Channel functions at a glance

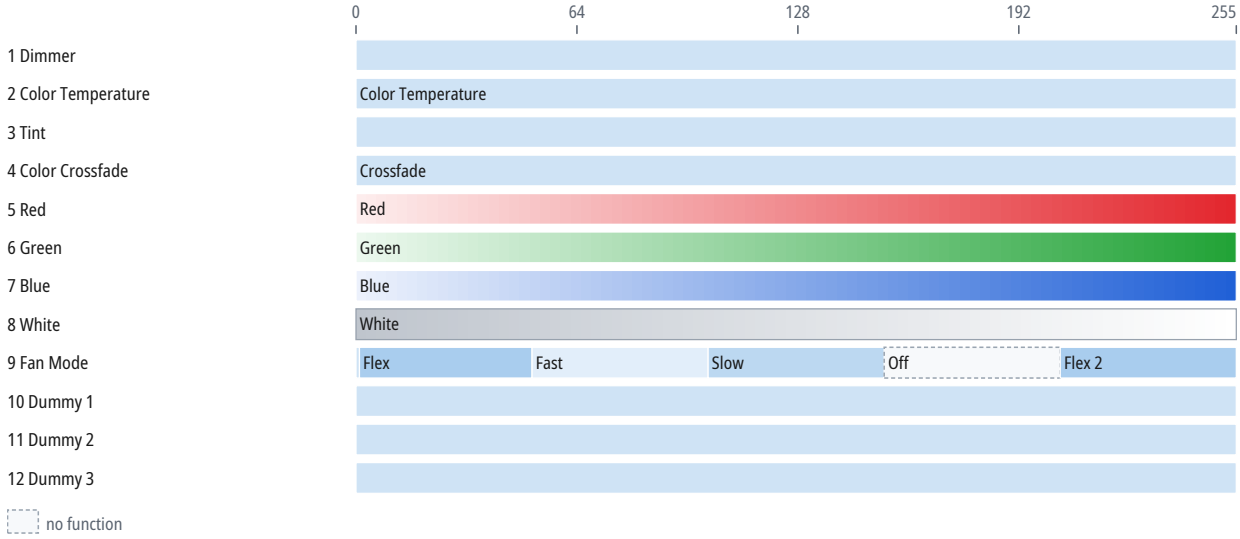


CH	Function	DMX	Description
1	Dimmer	0–255	
2	Dimmer Fine	0–255	Fine adjustment of CH 1
3	Color Temperature	0–255	Color Temperature (1500–10000 K)
4	Color Temperature Fine	0–255	Fine adjustment of CH 3
5	Tint	0–255	
6	Tint Fine	0–255	Fine adjustment of CH 5
7	Color Crossfade	0–255	Crossfade
8	Color Crossfade Fine	0–255	Fine adjustment of CH 7
9	Red	0–255	Red
10	Red Fine	0–255	Fine adjustment of CH 9
11	Green	0–255	Green
12	Green Fine	0–255	Fine adjustment of CH 11
13	Blue	0–255	Blue
14	Blue Fine	0–255	Fine adjustment of CH 13
15	White	0–255	White
16	White Fine	0–255	Fine adjustment of CH 15
17	Fan Mode		Same as CH 9 in the mode “ITSH16” (p. 8)
18	Dummy 1	0–255	
19	Dummy 2	0–255	
20	Dummy 3	0–255	

Mode ARRI1

If the device receives DMX in this mode but gives no light, check these channels: CH 1 Dimmer above 0. The GDTF file gives these values for a console's Highlight function: CH 1 Dimmer 0, CH 2 Color Temperature 255, CH 8 White 255.

Channel functions at a glance



CH	Function	DMX	Description
1	Dimmer	0–255	
2	Color Temperature	0–255	Color Temperature (1500–10000 K)
3	Tint	0–255	
4	Color Crossfade	0–255	Crossfade
5	Red	0–255	Red
6	Green	0–255	Green
7	Blue	0–255	Blue
8	White	0–255	White
9	Fan Mode		Same as CH 9 in the mode “ITSH16” (p. 8)
10	Dummy 1	0–255	
11	Dummy 2	0–255	
12	Dummy 3	0–255	

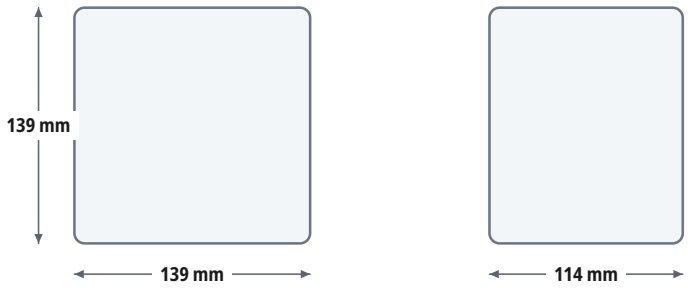
9 Technical specifications

Parameter	Value
Light source	discharge lamp
Lamp power	1,000 W
Luminous flux	10,000 lm
Color temperature	4,500 K
Color rendering index (CRI)	100
Beam angle	20°
Operating temperature	0 to 40 °C

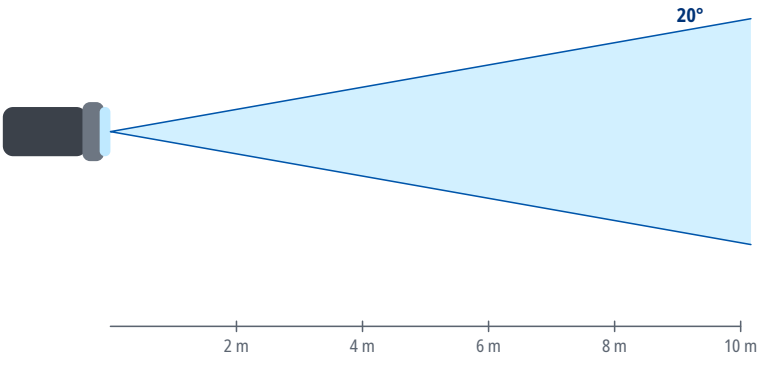
Speeds and ranges

Parameter	Value
Color temperature range	1500–10000 K

Dimensions



Spot diameter



Distance	Ø 20°
2 m	0.71 m
4 m	1.4 m
6 m	2.1 m
8 m	2.8 m
10 m	3.5 m
15 m	5.3 m

Spot diameter square to the beam axis, calculated from the beam angle.

10 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.

11 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.

12 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.