DMX REFERENCE

LM19X20BER

Event Lighting

Manufacturer	Event Lighting
GDTF file	Event_Lighting_LM19X20BER_89152.gdtf
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1 About this manual

This document describes the LM19X20BER by Event Lighting. It was compiled from the GDTF file Event_Lighting_LM19X20BER_89152.gdtf from the GDTF-Share library.

File revision: “Rev 1”.

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 Event 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

Parameter	Value
Weight	5.6 kg

DMX modes

Mode	Channels	Units in one universe	First start addresses
38ch	38	13	1, 39, 77, 115, ...

No light? Check these channels

- 38ch: CH 6 Dimmer 1 above 0; CH 7 Shutter at 32–63 or 96–127 or 160–191 or 224–255; CH 24 Dimmer 2 above 0; CH 33 Dimmer 3 above 0; CH 34 Dimmer 4 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.

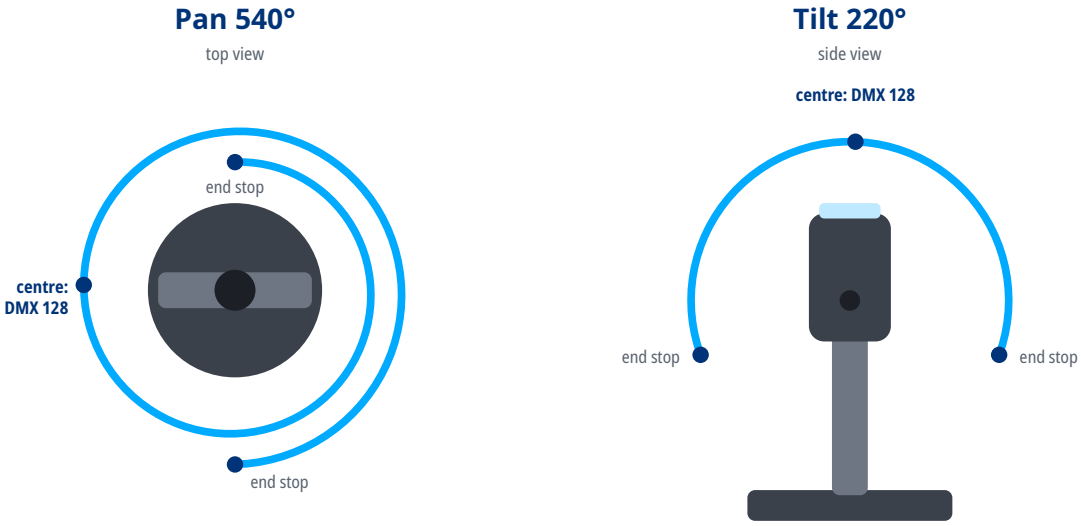
⚠ CAUTION

- 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

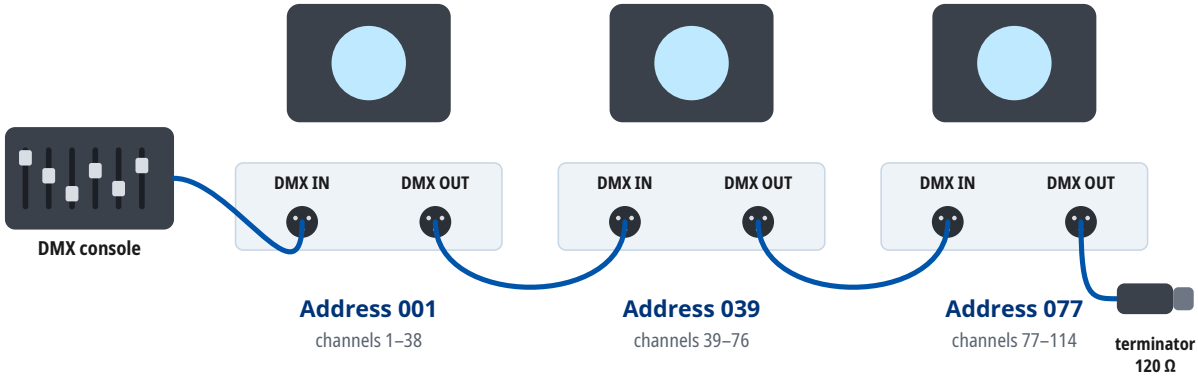
> ⚠ **WARNING**
>
> - Rigging must be carried out only by qualified persons in accordance with applicable regulations, in particular those for work at height.
> - The supporting structure and fixings must safely carry the weight of all suspended devices; verify their load capacity in advance.
> - Weight of the device: 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 38ch: every unit occupies 38 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 “38ch”: 38.
- 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 “38ch”, you can use, for example, the start addresses 1, 39, 77, 115.
- The DMX mode set on the device must match the fixture profile (personality) used in the controller.

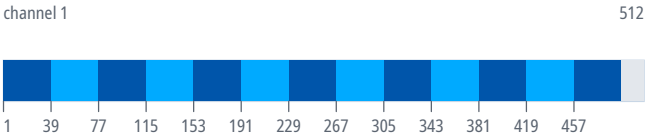
8 Functions at a glance

Functions in each DMX mode

	38ch 38 channels
Pan / Tilt	1, 3
Dimmer	6, 24, 33, 34
Shutter / strobe	7, 25
Color mixing	8–11, 26–28, 35–37
Color temperature	16
Zoom	12
Focus	14
Effects / macros	9 channels (15–32)
Pixel control	✓

9 DMX channels

Units in one DMX universe



38ch
38 channels

up to 13 units
last address 457

Start addresses of 20 units in the mode “38ch”

Unit	Start address	Unit	Start address	Unit	Start address	Unit	Start address
1	1	6	191	11	381	16	U2 · 77
2	39	7	229	12	419	17	U2 · 115
3	77	8	267	13	457	18	U2 · 153
4	115	9	305	14	U2 · 1	19	U2 · 191
5	153	10	343	15	U2 · 39	20	U2 · 229

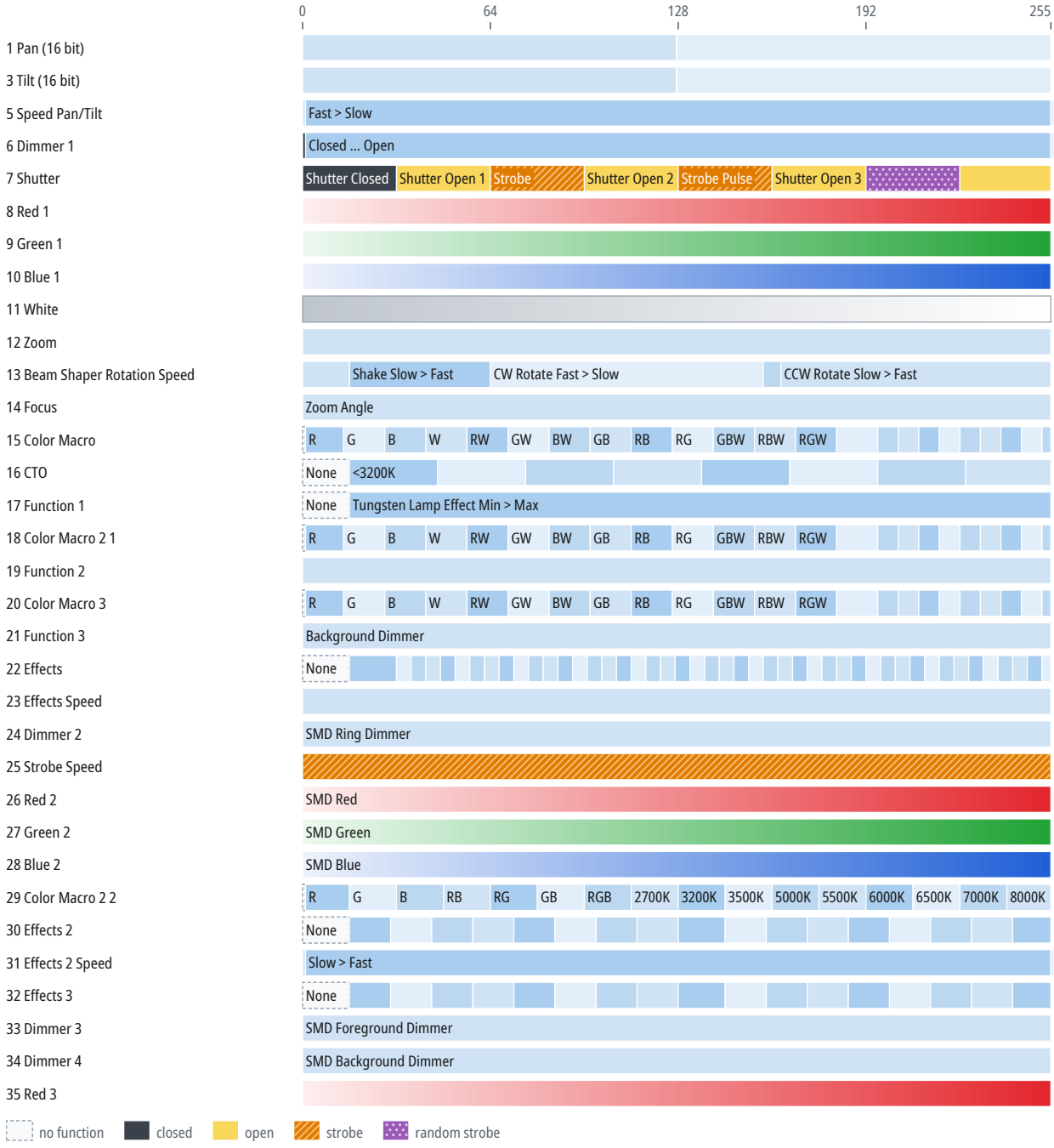
Where a DMX universe is full, the next units continue in the next universe: “U2 · 1” is address 1 in the second universe, counted from the universe of the first unit.

Mode 38ch

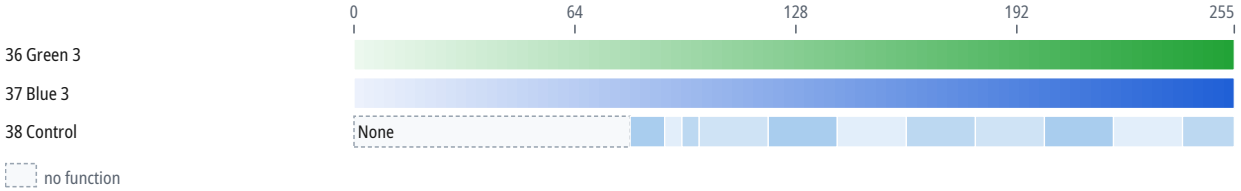
16-bit parameters use two channels, coarse and fine: value = 256 × coarse value + fine value.

If the device receives DMX in this mode but gives no light, check these channels: CH 6 Dimmer 1 above 0; CH 7 Shutter at 32–63 or 96–127 or 160–191 or 224–255; CH 24 Dimmer 2 above 0; CH 33 Dimmer 3 above 0; CH 34 Dimmer 4 above 0. The GDTF file gives these values for a console's Highlight function: CH 6 Dimmer 1 255.

Channel functions at a glance



Channel functions at a glance



CH	Function	DMX	Description
1	Pan	0–127	Pan 1
		128	Home
		128–255	Pan 1
2	Pan Fine	0–255	Fine adjustment of CH 1
3	Tilt	0–127	Tilt 1
		128	Home
		128–255	Tilt 1
4	Tilt Fine	0–255	Fine adjustment of CH 3
5	Speed Pan/Tilt	0	Fast
		1–254	Fast > Slow
		255	Slow
6	Dimmer 1	0	Closed
		1–254	Closed ... Open
		255	Open
7	Shutter	0–31	Shutter Closed
		32–63	Shutter Open 1
		64–95	Strobe
		96–127	Shutter Open 2
		128–159	Strobe Pulse
		160–191	Shutter Open 3
		192–223	Strobe Random
		224–255	Shutter Open 4
8	Red 1	0–255	
9	Green 1	0–255	
10	Blue 1	0–255	
11	White	0–255	
12	Zoom	0–255	6–60°
13	Beam Shaper Rotation Speed		Lens Rotation
		0–15	Rotate Off
		16–63	Shake Slow > Fast
		64–156	CW Rotate Fast > Slow
		157–162	Rotate Off
		163–255	CCW Rotate Slow > Fast
14	Focus		Zoom Angle
		0–255	Zoom Angle

CH	Function	DMX	Description
15	Color Macro		Colour Macro
		0	None
		1–13	R
		14–27	G
		28–41	B
		42–55	W
		56–69	RW
		70–83	GW
		84–97	BW
		98–111	GB
		112–125	RB
		126–139	RG
		140–153	GBW
		154–167	RBW
		168–181	RGW
		182–195	RGBW
		196–202	2700K
		203–209	3200K
		210–216	3500K
		217–223	5000K
		224–230	5500K
		231–237	6000K
		238–244	6500K
		245–251	7000K
		252–255	8000K
16	CTO	0–15	None
		16–45	<3200K
		46–75	3200K > 3500K
		76–105	3500K > 5000K
		106–135	5000K > 5500K
		136–165	5500K > 6000K
		166–195	6000K > 6500K
		196–225	6500K > 7000K
		226–255	7000K > 8000K
17	Function 1		Visual Tungsten Lamp
		0–15	None
		16–255	Tungsten Lamp Effect Min > Max
18	Color Macro 2 1		Foreground Colour
		0	None
		1–13	R
		14–27	G
		28–41	B

CH	Function	DMX	Description
18	Color Macro 2 1 (continued)	42–55	W
		56–69	RW
		70–83	GW
		84–97	BW
		98–111	GB
		112–125	RB
		126–139	RG
		140–153	GBW
		154–167	RBW
		168–181	RGW
		182–195	RGBW
		196–202	2700K
		203–209	3200K
		210–216	3500K
		217–223	5000K
		224–230	5500K
		231–237	6000K
		238–244	6500K
		245–251	7000K
		252–255	8000K
19	Function 2	0–255	
20	Color Macro 3		Foreground Colour
		0	None
		1–13	R
		14–27	G
		28–41	B
		42–55	W
		56–69	RW
		70–83	GW
		84–97	BW
		98–111	GB
		112–125	RB
		126–139	RG
		140–153	GBW
		154–167	RBW
		168–181	RGW
		182–195	RGBW
		196–202	2700K
		203–209	3200K
		210–216	3500K
		217–223	5000K
		224–230	5500K

CH	Function	DMX	Description
20	Color Macro 3 (continued)	231–237	6000K
		238–244	6500K
		245–251	7000K
		252–255	8000K
21	Function 3		Background Dimmer
		0–255	Background Dimmer
22	Effects	0–15	None
		16–31	Static Patterns
		32–36	Program 1
		37–41	Program 2
		42–46	Program 3
		47–51	Program 4
		52–56	Program 5
		57–61	Program 6
		62–66	Program 7
		67–71	Program 8
		72–76	Program 9
		77–81	Program 10
		82–86	Program 11
		87–91	Program 12
		92–96	Program 13
		97–101	Program 14
		102–106	Program 15
		107–111	Program 16
		112–116	Program 17
		117–121	Program 18
		122–126	Program 19
		127–131	Program 20
		132–136	Program 21
		137–141	Program 22
		142–146	Program 23
		147–151	Program 24
		152–156	Program 25
		157–161	Program 26
		162–166	Program 27
		167–171	Program 28
		172–176	Program 29
		177–181	Program 30
		182–186	Program 31
		187–191	Program 32
		192–196	Program 33
		197–201	Program 34

CH	Function	DMX	Description
22	Effects (continued)	202–206	Program 35
		207–211	Program 36
		212–216	Program 37
		217–221	Program 38
		222–226	Program 39
		227–231	Program 40
		232–236	Program 41
		237–241	Program 42
		242–246	Program 43
		247–251	Program 44
		252–255	Program 45
23	Effects Speed	0–255	
24	Dimmer 2		SMD Ring Dimmer
		0–255	SMD Ring Dimmer
25	Strobe Speed	0–255	
26	Red 2		SMD Red
		0–255	SMD Red
27	Green 2		SMD Green
		0–255	SMD Green
28	Blue 2		SMD Blue
		0–255	SMD Blue
29	Color Macro 2 2	0	None
		1–15	R
		16–31	G
		32–47	B
		48–63	RB
		64–79	RG
		80–95	GB
		96–111	RGB
		112–127	2700K
		128–143	3200K
		144–159	3500K
		160–175	5000K
		176–191	5500K
		192–207	6000K
		208–223	6500K
		224–239	7000K
		240–255	8000K
30	Effects 2	0–15	None
		16–29	Program 1
		30–43	Program 2
		44–57	Program 3

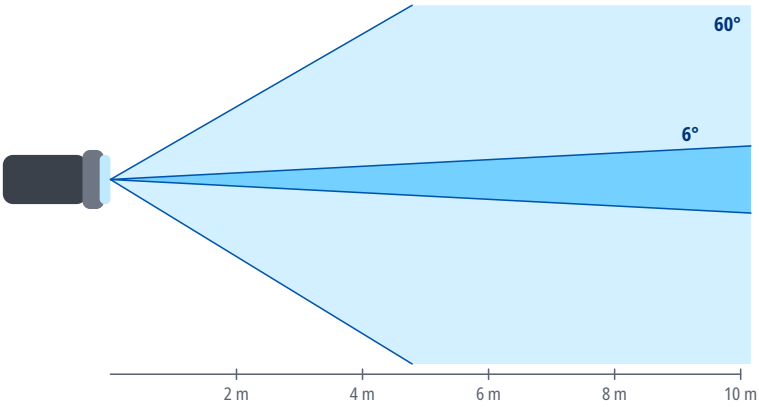
CH	Function	DMX	Description
30	Effects 2 (continued)	58–71	Program 4
		72–85	Program 5
		86–99	Program 6
		100–113	Program 7
		114–127	Program 8
		128–143	Program 9
		144–157	Program 10
		158–171	Program 11
		172–185	Program 12
		186–199	Program 13
		200–213	Program 14
		214–227	Program 15
		228–241	Program 16
		242–255	Program 17
31	Effects 2 Speed	0	Slow
		1–254	Slow > Fast
		255	Fast
32	Effects 3	0–15	None
		16–29	Program 1
		30–43	Program 2
		44–57	Program 3
		58–71	Program 4
		72–85	Program 5
		86–99	Program 6
		100–113	Program 7
		114–127	Program 8
		128–143	Program 9
		144–157	Program 10
		158–171	Program 11
		172–185	Program 12
		186–199	Program 13
		200–213	Program 14
		214–227	Program 15
		228–241	Program 16
		242–255	Program 17
33	Dimmer 3		SMD Foreground Dimmer
		0–255	SMD Foreground Dimmer
34	Dimmer 4		SMD Background Dimmer
		0–255	SMD Background Dimmer
35	Red 3	0–255	
36	Green 3	0–255	
37	Blue 3	0–255	

CH	Function	DMX	Description
38	Control	0–79	None
		80–89	Reset All
		90–94	Reset Scan Motor
		95–99	Reset Zoom Motor
		100–119	Internal Program 1
		120–139	Internal Program 2
		140–159	Internal Program 3
		160–179	Internal Program 4
		180–199	Internal Program 5
		200–219	Internal Program 6
		220–239	Internal Program 7
		240–255	Internal Sound Program

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	
Zoom	6–60°
Movement	
Pan	540°
Tilt	220°
Dimensions and construction	
Weight	5.6 kg
Operating environment	
Operating temperature	0 to 40 °C

Spot diameter



Distance	Ø 6°	Ø 60°
2 m	0.21 m	2.3 m
4 m	0.42 m	4.6 m
6 m	0.63 m	6.9 m
8 m	0.84 m	9.2 m
10 m	1 m	11.5 m
15 m	1.6 m	17.3 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.