DMX REFERENCE

Lightcard

Unreal Engine Lightcard

Jack Dartford

Manufacturer	Jack Dartford
GDTF file	Jack_Dartford_Lightcard_33779.gdtf
GDTF revision	V2.91 · 2023-01-30
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1 About this manual

This document describes the Unreal Engine Lightcard by Jack Dartford. It was compiled from the GDTF file Jack_Dartford_Lightcard_33779.gdtf from the GDTF-Share library.

File revision: “V2.91”.

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 Jack Dartford; 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
16bit	25	20	1, 26, 51, 76, ...

No light? Check these channels

- 16bit: CH 9 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.

⚠ 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 Installation

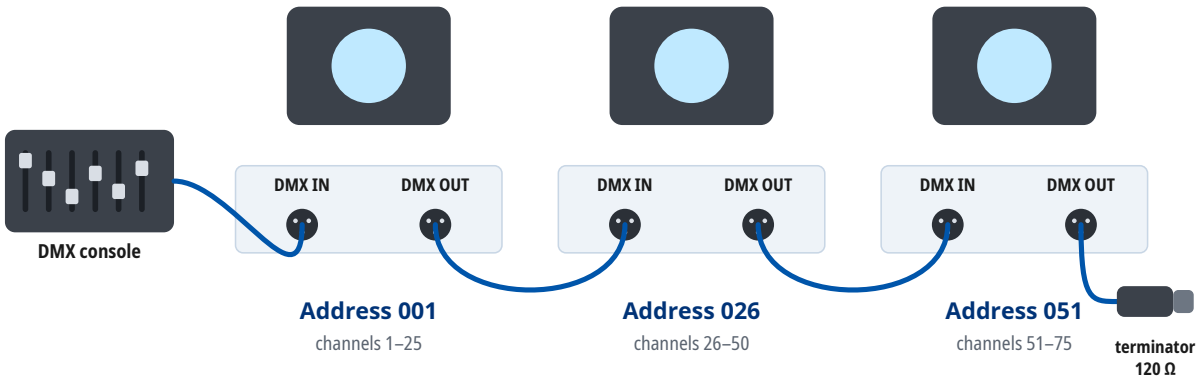
⚠ WARNING

- 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 16bit: every unit occupies 25 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 “16bit”: 25.
- 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 “16bit”, you can use, for example, the start addresses 1, 26, 51, 76.
- 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

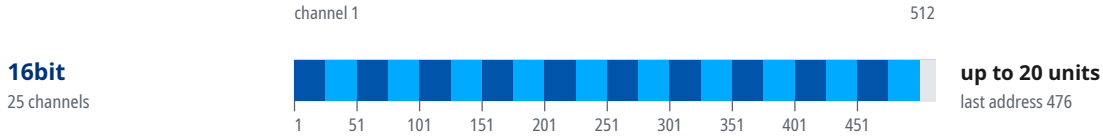
	16bit 25 channels
Pan / Tilt	1, 3
Dimmer	9
Color mixing	15, 17, 19
Gobo wheel	25
Gobo rotation	21
Frost	13

Gobo wheel

1	Circle DMX 0–22	5	Kino Flo DMX 93–115	9	Soft Box DMX 186–208
2	Square DMX 23–46	6	Kino Flo Diva DMX 116–139	10	Synthetic Spot DMX 209–232
3	Beauty Dish DMX 47–69	7	Ring Flash DMX 140–162	11	Zebra DMX 233–255
4	Halogen Desk Lamp DMX 70–92	8	Rotalux Deep Octabox DMX 163–185		

8 DMX channels

Units in one DMX universe



Start addresses of 20 units in the mode “16bit”

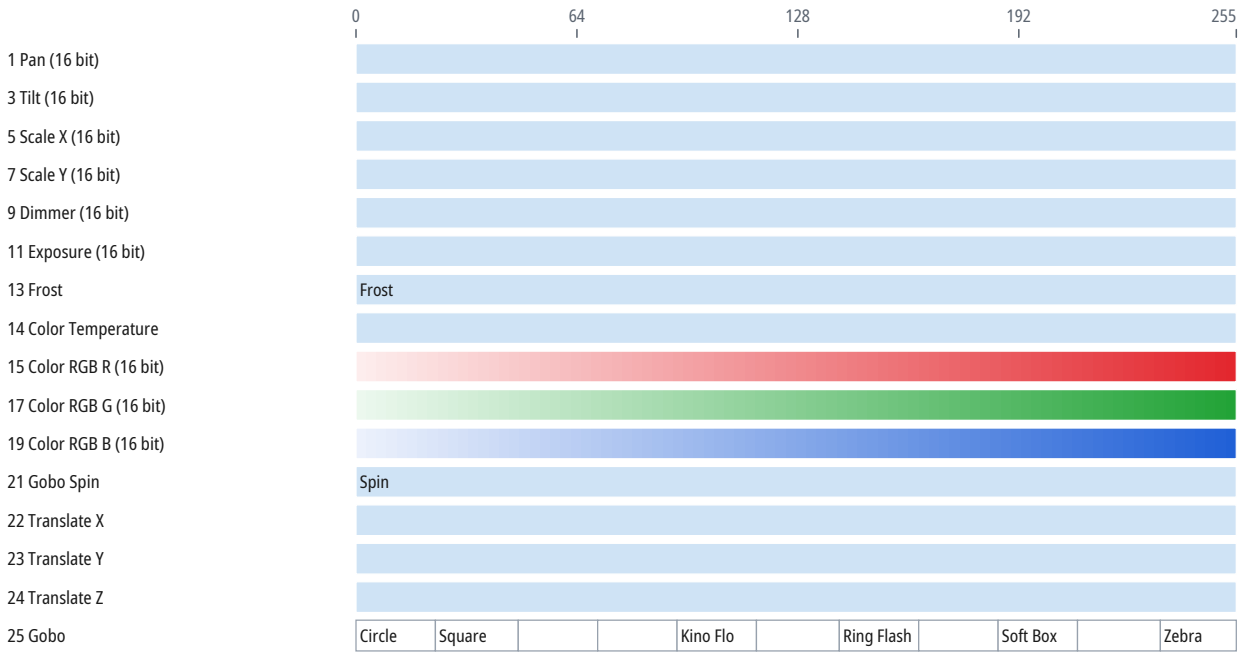
Unit	Start address	Unit	Start address	Unit	Start address	Unit	Start address
1	1	6	126	11	251	16	376
2	26	7	151	12	276	17	401
3	51	8	176	13	301	18	426
4	76	9	201	14	326	19	451
5	101	10	226	15	351	20	476

Mode 16bit

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 9 Dimmer above 0. The GDTF file gives these values for a console's Highlight function: CH 9 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	Scale X	0–255	

CH	Function	DMX	Description
6	Scale X Fine	0–255	Fine adjustment of CH 5
7	Scale Y	0–255	
8	Scale Y Fine	0–255	Fine adjustment of CH 7
9	Dimmer	0–255	
10	Dimmer Fine	0–255	Fine adjustment of CH 9
11	Exposure	0–255	
12	Exposure Fine	0–255	Fine adjustment of CH 11
13	Frost	0–255	Frost
14	Color Temperature	0–255	
15	Color RGB R	0–255	
16	Color RGB R Fine	0–255	Fine adjustment of CH 15
17	Color RGB G	0–255	
18	Color RGB G Fine	0–255	Fine adjustment of CH 17
19	Color RGB B	0–255	
20	Color RGB B Fine	0–255	Fine adjustment of CH 19
21	Gobo Spin	0–255	Spin
22	Translate X	0–255	
23	Translate Y	0–255	
24	Translate Z	0–255	
25	Gobo	0–22	Circle
		23–46	Square
		47–69	Beauty Dish
		70–92	Halogen Desk Lamp
		93–115	Kino Flo
		116–139	Kino Flo Diva
		140–162	Ring Flash
		163–185	Rotalux Deep Octabox
		186–208	Soft Box
		209–232	Synthetic Spot
		233–255	Zebra

9 Technical specifications

Parameter	Value
Operating temperature	0 to 40 °C

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.
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.

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.