DMX REFERENCE

IP65 LED Pixel Panel

Strobe RGBW

Hightek Optoelectronic Limited

Manufacturer	Hightek Optoelectronic Limited
GDTF file	Hightek_Optoelectronic_Limited_IP65_LED_Pixel_Panel_69776.gdtf
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1 About this manual

This document describes the Strobe RGBW by Hightek Optoelectronic Limited. It was compiled from the GDTF file Hightek_Optoelectronic_Limited_IP65_LED_Pixel_Panel_69776.gdtf from the GDTF-Share library.

File revision: “V2.1”.

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 Hightek Optoelectronic Limited; 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
Power consumption	30 W

DMX modes

Mode	Channels	Units in one universe	First start addresses
12 Chs	12	42	1, 13, 25, 37, ...

No light? Check these channels

- 12 Chs: CH 5 Dimmer 1 above 0; CH 7 Dimmer 2 above 0; CH 9 Strobe Frequency 1 at 160–191 or 224–255; CH 10 Strobe Frequency 2 at 160–191 or 224–255


Read the manual before use


Risk of electric shock


Do not stare into the light


Indoor use only

3 Safety instructions


Read the manual before use


Risk of electric shock


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

- Connect the device only to a properly installed mains outlet with a protective earth (ground) contact. The outlet or other means of disconnection must remain easily accessible.
- Power supply: 100–240 V, 50/60 Hz. Before connecting, make sure that the mains voltage matches this value and the value on the rating plate of the device.
- Do not connect the device to a dimmer or to a dimmed circuit.
- Use only the original power cable or a cable with identical ratings. Protect the cable from damage, do not run it over sharp edges, and never unplug it by pulling on the cable.
- When connecting several devices to one circuit, do not exceed its permitted load.
- Do not touch the device with wet hands.

⚠ 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

- This device produces very intense flashes of light.
- Flash rates of about 3 to 30 flashes per second carry the highest risk for people with photosensitive epilepsy.
- Do not aim the device into the eyes of the audience or performers at close range.
- At public events, always give clear advance notice that strobe effects will be used.

4 Installation

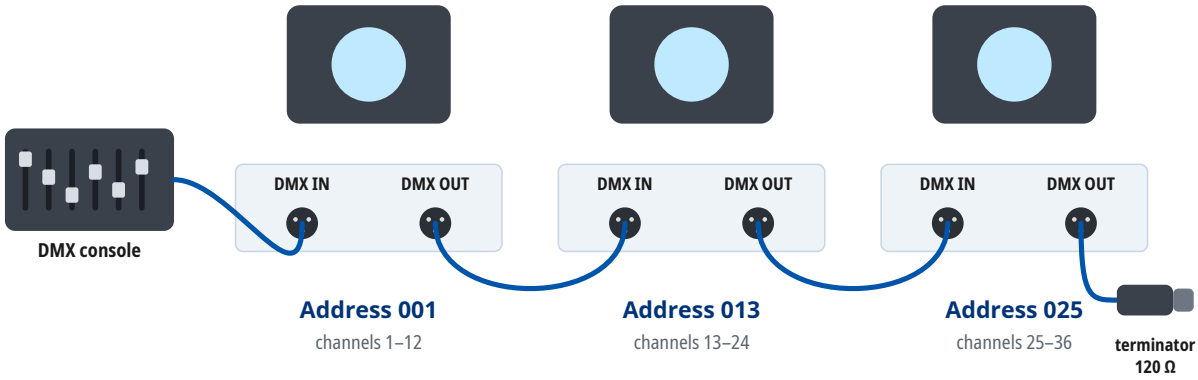
⚠ WARNING

- 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 12 Chs: 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.

6 Operation

Setting the DMX address

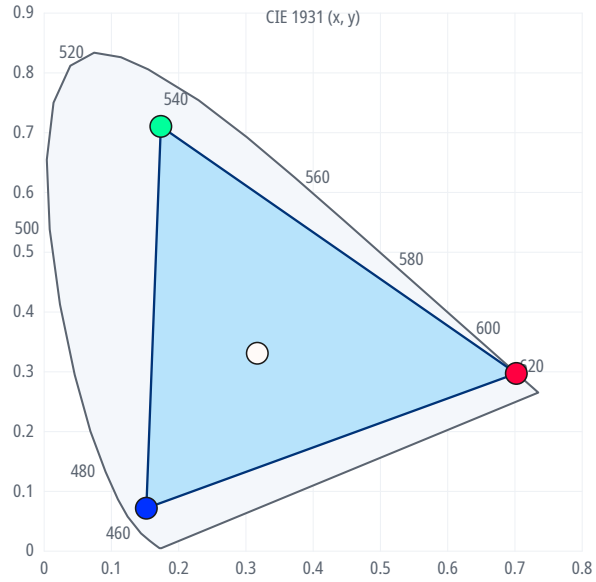
- The device occupies as many consecutive channels in the DMX universe as the selected DMX mode uses, starting at the set start address.
- Number of channels occupied in the DMX mode “12 Chs”: 12.
- Choose start addresses so that the channels of individual devices do not overlap and the last occupied 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 Chs”, 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.

7 Functions at a glance

Functions in each DMX mode

	12 Chs 12 channels
Dimmer	5, 7
Shutter / strobe	9, 10
Color mixing	1–4
Effects / macros	11, 12

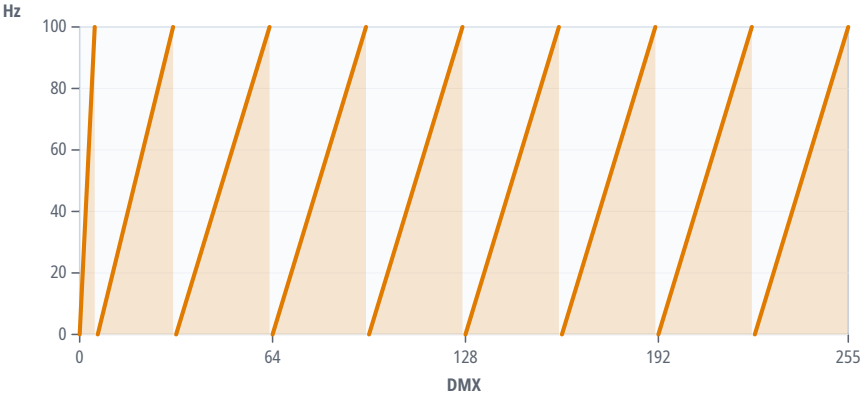
LED colors and the colors they mix



LED	x	y	nm
Red	0.702	0.297	626
Green	0.173	0.711	527
Blue	0.152	0.072	452
White	0.317	0.331	

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

Strobe rate

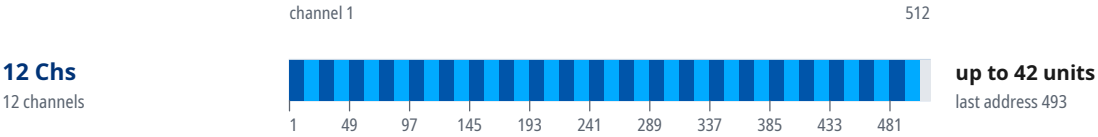


CH 9 · 12 Chs

- 0–5: 0–100 Hz
  LED On 2
- 6–31: 0–100 Hz
  LED Off
- 32–63: 0–100 Hz
  LED On 3
- 64–95: 0–100 Hz
  Ordinary Strobe
- 96–127: 0–100 Hz
  LED On 4
- 128–159: 0–100 Hz
  Slow Light Strobe
- 160–191: 0–100 Hz
  LED On
- 192–223: 0–100 Hz
  Random Strobe

8 DMX channels

Units in one DMX universe



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

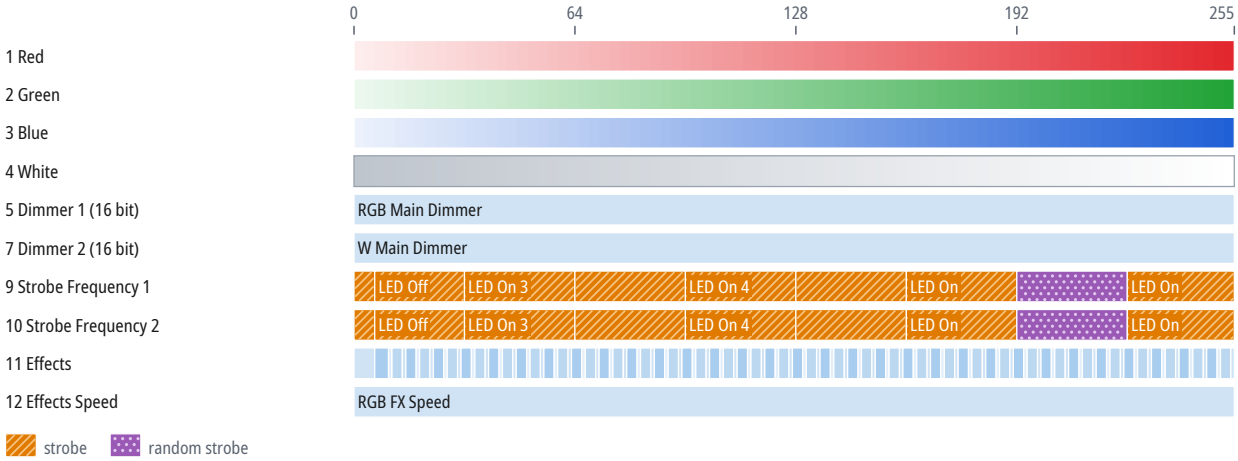
Unit	Start address	Unit	Start address	Unit	Start address	Unit	Start address
1	1	6	61	11	121	16	181
2	13	7	73	12	133	17	193
3	25	8	85	13	145	18	205
4	37	9	97	14	157	19	217
5	49	10	109	15	169	20	229

Mode 12 Chs

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 5 Dimmer 1 above 0; CH 7 Dimmer 2 above 0; CH 9 Strobe Frequency 1 at 160–191 or 224–255; CH 10 Strobe Frequency 2 at 160–191 or 224–255. The GDTF file gives these values for a console's Highlight function: CH 1 Red 255, CH 2 Green 255, CH 3 Blue 255, CH 4 White 255, CH 5 Dimmer 1 255, CH 7 Dimmer 2 255, CH 9 Strobe Frequency 1 0, CH 10 Strobe Frequency 2 0.

Channel functions at a glance



CH	Function	DMX	Description
1	Red	0–255	
2	Green	0–255	
3	Blue	0–255	
4	White	0–255	
5	Dimmer 1		RGB Main Dimmer
		0–255	RGB Main Dimmer
6	Dimmer 1 Fine	0–255	Fine adjustment of CH 5

CH	Function	DMX	Description
7	Dimmer 2		W Main Dimmer
		0–255	W Main Dimmer
8	Dimmer 2 Fine	0–255	Fine adjustment of CH 7
9	Strobe Frequency 1	0–5	LED On 2
		6–31	LED Off
		32–63	LED On 3
		64–95	Ordinary Strobe
		96–127	LED On 4
		128–159	Slow Light Strobe
		160–191	LED On
		192–223	Random Strobe
		224–255	LED On
10	Strobe Frequency 2	0–5	LED On 2
		6–31	LED Off
		32–63	LED On 3
		64–95	Ordinary Strobe
		96–127	LED On 4
		128–159	Slow Light Strobe
		160–191	LED On
		192–223	Random Strobe
		224–255	LED On
11	Effects		Macro RGBW FX
		0–5	Empty
		6–9	FX 1
		10	FX 2
		11–13	FX 2 ... FX 3
		14	FX 3
		15–17	FX 3 ... FX 4
		18	FX 4
		19–21	FX 4 ... FX 5
		22	FX 5
		23–25	FX 5 ... FX 6
		26	FX 6
		27–29	FX 6 ... FX 7
		30	FX 7
		31–33	FX 7 ... FX 8
		34	FX 8
		35–37	FX 8 ... FX 9
		38	FX 9
		39–41	FX 9 ... FX 10
		42	FX 10
		43–45	FX 10 ... FX 11

CH	Function	DMX	Description
11	Effects (continued)	46	FX 11
		47–49	FX 11 … FX 12
		50	FX 12
		51–53	FX 12 … FX 13
		54	FX 13
		55–57	FX 13 … FX 14
		58	FX 14
		59–61	FX 14 … FX 15
		62	FX 15
		63–65	FX 15 … FX 16
		66	FX 16
		67–69	FX 16 … FX 17
		70	FX 17
		71–73	FX 17 … FX 18
		74	FX 18
		75–77	FX 18 … FX 19
		78	FX 19
		79–81	FX 19 … FX 20
		82	FX 20
		83–85	FX 20 … FX 21
		86	FX 21
		87–89	FX 21 … FX 22
		90	FX 22
		91–93	FX 22 … FX 23
		94	FX 23
		95–97	FX 23 … FX 24
		98	FX 24
		99–101	FX 24 … FX 25
		102	FX 25
		103–105	FX 25 … FX 26
		106	FX 26
		107–109	FX 26 … FX 27
		110	FX 27
		111–113	FX 27 … FX 28
		114	FX 28
		115–117	FX 28 … FX 29
		118	FX 29
		119–121	FX 29 … FX 30
		122	FX 30
		123–125	FX 30 … FX 31
		126	FX 31
		127–129	FX 31 … FX 32

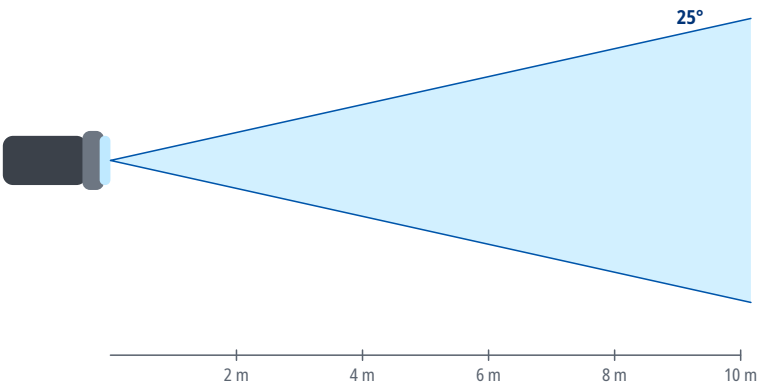
CH	Function	DMX	Description
11	Effects (continued)	130	FX 32
		131–133	FX 32 … FX 33
		134	FX 33
		135–137	FX 33 … FX 34
		138	FX 34
		139–141	FX 34 … FX 35
		142	FX 35
		143–145	FX 35 … FX 36
		146	FX 36
		147–149	FX 36 … FX 37
		150	FX 37
		151–153	FX 37 … FX 38
		154	FX 38
		155–157	FX 38 … FX 39
		158	FX 39
		159–161	FX 39 … FX 40
		162	FX 40
		163–165	FX 40 … FX 41
		166	FX 41
		167–169	FX 41 … FX 42
		170	FX 42
		171–173	FX 42 … FX 43
		174	FX 43
		175–177	FX 43 … FX 44
		178	FX 44
		179–181	FX 44 … FX 45
		182	FX 45
		183–185	FX 45 … FX 46
		186	FX 46
		187–189	FX 46 … FX 47
		190	FX 47
		191–193	FX 47 … FX 48
		194	FX 48
		195–197	FX 48 … FX 49
		198	FX 49
		199–201	FX 49 … FX 50
		202	FX 50
		203–205	FX 50 … FX 51
		206	FX 51
		207–209	FX 51 … FX 52
		210	FX 52
		211–213	FX 52 … FX 53

CH	Function	DMX	Description
11	Effects (continued)	214	FX 53
		215–217	FX 53 … FX 54
		218	FX 54
		219–221	FX 54 … FX 55
		222	FX 55
		223–225	FX 55 … FX 56
		226	FX 56
		227–229	FX 56 … FX 57
		230	FX 57
		231–233	FX 57 … FX 58
		234	FX 58
		235–237	FX 58 … FX 59
		238	FX 59
		239–241	FX 59 … FX 60
		242	FX 60
		243–245	FX 60 … FX 61
		246	FX 61
		247–249	FX 61 … FX 62
		250	FX 62
		251–253	FX 62 … Effect Polling
		254–255	Effect Polling
12	Effects Speed		RGB FX Speed
		0–255	RGB FX Speed

9 Technical specifications

Parameter	Value
Light source	LED
DMX connection	5-pin XLR IN/OUT
Power supply	100–240 V, 50/60 Hz
Power consumption	30 W
Power connectors	powerCON TRUE1 IN
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.

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.