

LIGHT ENGINE USER MANUAL

FCC STATEMENT

This device complies with Part 15 of the FCC rules. Operation is subject to the following two conditions:

- 1) this device may not cause harmful interference, and
- 2) this device must accept any interference received, including interference that may cause undesired operation.

Changes or modifications not expressly approved by the party responsible for compliance could void your authority to operate the equipment.

NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation.

This equipment generates uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Packing List:

Light Engine	1pc
Fiber Connector.....	1pc/2pcs
Remote Control.....	1pc (Optional)
Power Adapter.....	1pc
Signal Cable.....	1pc (For DMX light engine only)
User Manual.....	1pc



LEB-431/LEB-432
LEC-431/LEC-432

LEB-431DMX/LEB-432DMX
LEC-431DMX/LEC-432DMX



APP Download

Use distance: more than 20cm

LIGHT ENGINE USER MANUAL

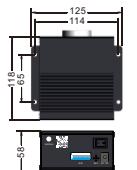
Welcome to use LEB & LEC series of professional low-voltage light engines. Please read the manual carefully before turning on the light engine. If you have any questions concerning the operation or maintenance, please contact your local wholesaler.

Safety Notes:

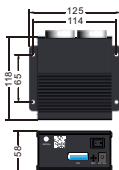
1. Make sure the input voltage is correct.
2. Avoid placing the light engine in the rain or in moist areas. Please ensure that the light engine has sufficient ventilation and is not placed in a completely sealed area.
3. Avoid using the device above 40 °C temperature.



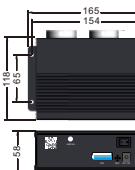
Light engine information and dimensions



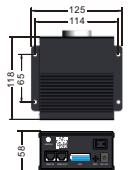
LEB-431/LEC-431



LEB-432



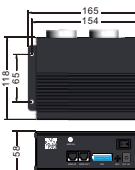
LEC-432



LEB-431DMX/LEC-431DMX



LEB-432DMX



LEC-432DMX

LEB-431/LEB-432 & LEC-431/LEC-432

Technical parameters:

Model	LEB-431	LEB-432	LEC-431	LEC-432
Input Voltage	12V DC	12V DC	12V DC	12V DC
Power Consumption	12 W	20 W	15 W	23 W
LED	1-4X3W	2-4X3W	1-4X3W	2-4X3W
Emitting Colors	RGBW Mixing	RGBW Mixing	RGBW Mixing	RGBW Mixing
LED Lifespan	50000H	50000H	50000H	50000H
Twinkle	✗	✗	✓	✓
Sound Control	✓	✓	✓	✓
Remote Control	Optional	Optional	Optional	Optional
APP	Optional	Optional	Optional	Optional
Dimensions	L125XW118XH58 mm	L125XW118XH58 mm	L125XW118XH58 mm	L165XW118XH58 mm
Weight	0.47Kg	0.50Kg	0.55Kg	0.70Kg
Port Aperture	MAX: Φ20mm	MAX: Φ20mm	MAX: Φ20mm	MAX: Φ20mm
Maximum Fiber Strands	Φ0.75X550PCS	2Φ0.75X550PCS	Φ0.75X550PCS	2Φ0.75X550PCS

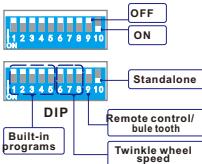
Fiber optic light engine settings

Those light engines are of the regular version, and have the following control modes:

Working Sate	Built-in Programs	Remote control	DMX controller/Console	Sound	APP
Standalone	✓	✓	✗	✓	✓

Standalone mode settings:

Make sure the 10th DIP switch of the light engine is always set to ON. The 9th DIP switch also needs to be set to ON if there is a remote control or APP control feature. The built-in program can be selected with the 1st through 5th DIP switches. The 6th through 8th DIP switches are used to set the speed of the twinkle wheel for the LEC series and are left blank for the LEB series. (DIP switches pulled down are "ON", and the flat switches are "OFF".)



* Please refer to the Table on Page 7 for built-in programs and twinkle wheel speed.

* Please refer to the Table on Page 5 for remote control details.

* Please scan the QR code on the manual cover to download the APP.

LEB-431DMX/LEB-432DMX & LEC-431DMX/LEC-432DMX**Technical parameters:**

Model	LEB-431DMX	LEB-432DMX	LEC-431DMX	LEC-432DMX
Input Voltage	12V DC	12V DC	12V DC	12V DC
Power Consumption	12 W	20 W	15 W	23 W
LED	1-4X3W	2-4X3W	1-4X3W	2-4X3W
Emitting Colors	RGBW Mixing	RGBW Mixing	RGBW Mixing	RGBW Mixing
LED Lifespan	50000H	50000H	50000H	50000H
Twinkle	✗	✗	✓	✓
DMX 512	✓	✓	✓	✓
Sound Control	✓	✓	✓	✓
Remote Control	Optional	Optional	Optional	Optional
APP	Optional	Optional	Optional	Optional
Dimensions	L125XW118XH58 mm	L125XW118XH58 mm	L125XW118XH58 mm	L165XW118XH58 mm
Weight	0.47Kg	0.50Kg	0.55Kg	0.70Kg
Port Aperture	MAX: Ø20mm	MAX: Ø20mm	MAX: Ø20mm	MAX: Ø20mm
Maximum Fiber Strands	Φ0.75X550PCS	2Φ0.75X550PCS	Φ0.75X550PCS	2Φ0.75X550PCS

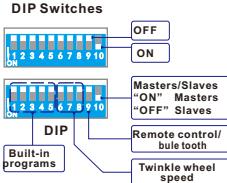
Fiber optic light engine settings

These light engines are of the DMX512 version and can operate either as a standalone unit or in a group of multiple units. A DMX light engine always works either as a Master or as a Slave in its operation. The following are the control modes in different states.

Working State	Master/Slave	Built-in Programs	Remote control	DMX controller/Console	Sound	APP
Standalone	Master	✓	✓	✗	✓	✓
	Slave	✗	✗	✓	✗	✗
Multiple Units	Master	✓	✓	✗	✓	✓
	Slave	✗	✗	✓	✗	✗

I. The settings of a Master light engine

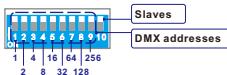
a. The DMX512 light engines are regarded as Masters also needs to be set to ON if there is a remote control when the 10th DIP switch is set to ON. The 9th DIP switch selected with the 1st through 5th DIP switches. The 6th or APP control feature. The built-in program can be through 8th DIP switches are used to set the speed of the twinkle wheel of the LEC series and are left blank for the LEB series.



* Please refer to the Table on Page 7 for built-in programs and twinkle wheel speed.

II. The settings of a Slave light engine

a. DMX512 light engines are regarded as Slaves when the 10th DIP switch is set to OFF. For Slave machines, the 1st through 9th DIP switches are used to set the DMX address. (DIP switches pulled down are "ON", and the flatswitches are "OFF".)



The DMX address code is calculated as a binary combination.

For example: 018=5 16+2 2

022=5 16+3 4+2 2

DMX addresses: 018



DMX addresses: 022

**b. DMX Channels: 7 Channels**

Ch1: Red Ch2: Green Ch3: Blue Ch4: White Ch5: Speed of color changing
Ch6: Dimmer + Flash Ch7: Wheel speed

III. The connection diagram when there is a DMX controller/console:

a. A DMX controller or console is required for this connection.

b. All the light engines in the group need to be of the same model and set to slaves
c. All the light engines need to set the DMX address as "001" if they need to have synchronous performance.

d. If each light engine is to be programmed individually, set 001 for the first machine, 008 for the second, and so on. (Each subsequent light engine is incremented by 7.)

IV. The connection diagram of Master-slave control mode.**Master-Slave control:**

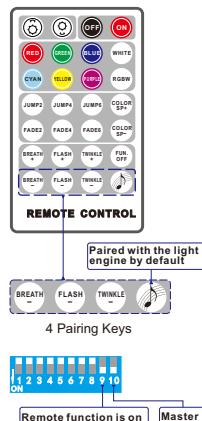
- If multiple light engines need to work synchronously without any DMX controller or console, those DMX light engines can form a group to run Master-Slave control.
- All the light engines in the group need to be of the same model.
- In this group, there must be and only one light engine that needs to be set as Master, and the rest are set as Slaves with the same DMX address, "001".
- As in standalone operation, the Master can run the built-in programs or be controlled by a remote control or APP.
- All Slaves will follow the Master to work synchronously.
- This Master can be placed at any position in the group.

Remote control Instructions:**I. The usage:**

- By default, the light engine and the remote control in the same box have been paired.
- The light engine can be controlled by the paired remote control only. Do not mix the light engine with other remote controls.
- Before using the remote control, make sure that the remote control has a fresh button cell (CR2032H) more remotes. It is also possible to pair the current.
- If necessary, you can pair the current light engine with remote with more light engines.

II. How to pair the remote control and the light engine:

- Make sure that the 9th and 10th DIP switches of the light engine have been set to ON. (shown on the right)
- Turn on the light engine. At the same time, press one of the four pairing keys 3 times in a row to start the pairing.
- The light engine will flash 3 times. The pairing is complete.

**III. The pairing rules:**

- The four keys on the last row of the remote are the four pairing keys.
- Each light engine can be paired with at most four different Pairing Keys. These four
- Each Pairing Key can be paired with multiple light engines and will have the same effect. Pairing Keys with different icons can be from different remote controls.
- Once the device is successfully paired with the remote control, the pairing function cannot be canceled, but can be overwritten.
- For the same light engine, a new pairing key will overwrite the previous pairing key with the same icon.

IV. The keys of the remote control

	Dimming+/- (7-tier) ON/OFF
 	Static colors (Red,Green,Blue,White,Cyan,Yellow,Purple,RGBW)
 	JUMP2: W , B Jump JUMP4: W, B, G, R Jump JUMP6: W, B, G, R, Y, C Jump FADE2: W, B Fade FADE4: W, B, G, R Fade FADE6: W, B, G, R, C Fade COLOR SP +/-: Color Cycling Speed Adjustment(7-tier)
 	BREATH+/- : Breathing Effect. (7-tier) FLASH+/- : Strobe Effect. (7-tier speed) TWINKLE+/- : Twinkle Effect. (7-tier speed) FUN.OFF : Termination of Breathe/Flashing/Sound control/ Twinkle effect Activate the Sound Control mode
	4 Pairing Keys: To match the light engine and the remote control for use. By default, is paired with the light engine.

Remarks:

- a. Press "Breath" or "Flash", the light engine will breathe or flash in a static color of the last emitted color. If "FUN.OFF" is pressed, the current breathing, flash or twinkle function will be turned off, and the light engine will resume the last program.
- b. The light engine has a memory function. When it is turned on, it runs the last program before it is turned off.

The table of the built-in programs of the Master light engineBuilt-in Programs List of the Master (1th to 5th DIP Switches)

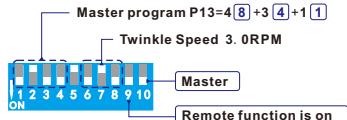
Pro.No.	DIP Switches Settings (1 st to 5 th)	Function
00		Light off, Motor stops
01		White
02		Blue
03		Green
04		Red
05		Yellow
06		Cyan
07		White, Blue, Green, Red, Yellow, Cyan Jump 2S
08		White, Blue, Green, Red, Yellow, Cyan Jump 4S
09		White, Blue, Green, Red, Yellow, Cyan Jump 8S
10		White, Blue, Green, Red, Yellow, Cyan Fade 2S
11		White, Blue, Green, Red, Yellow, Cyan Fade 4S
12		White, Blue, Green, Red, Yellow, Cyan Fade 8S
13		White, Blue Jump 2S
14		White, Blue Jump 4S

Pro.No.	DIP Switches Settings (1 st to 5 th)	Function
15		White, Blue Jump 8S
16		White, Blue Fade 2S
17		White, Blue Fade 4S
18		White, Blue Fade 8S

Built-in Twinkle Wheel Speed of the Master (6th to 8th DIP Switches)

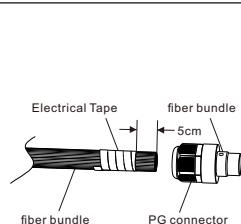
DIP Switches Settings (6 th to 8 th)	Function
	0.5RPM
	1.0RPM
	1.5RPM
	2.0RPM
	3.0RPM
	4.0RPM
	6.0RPM

For example: Master built-in program P13 +twinkle speed 3.0RPM



Fiber Bundle Assembly and Installation

I. Fiber connectors/couplings Assembly:

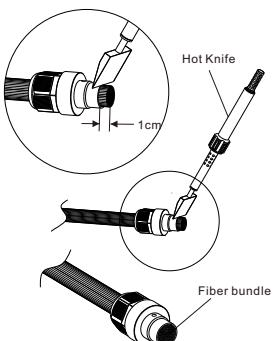


Step A:

Cut the fiber strands to the desired length. Bundle one end together and make the surface flush. Tighten the bundle with an electrical tape at 5cm away from the end. Loosen the nut on the PG connector, insert the harness end into it. For the sheathed fiber cables, peel off the sheath 10cm before the assembly.

Remarks:

The fiber bundle needs to match the fiber connector in size. If the port aperture is bigger than the bundle, insert dead fiber strands into the fiber connector to make it full. Make sure that the fiber strands are straight in the fiber connector, which is better for light output.

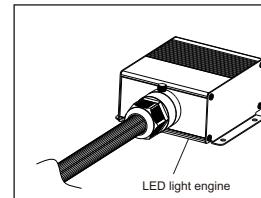


Step B:

1. Push the fiber bundle 1cm out of the fiber connector, and fasten the nut of the PG connector.
2. Heat the hot knife to about 250 degree Celsius. Hold the hot knife firmly and cut Celsius. Hold the hot knife firmly and cut the fiber bundle flush with the fiber connector. The angle between the hot knife and the fiber pot is suggested to be 25-30 degrees as shown in the left pictures

Remarks:

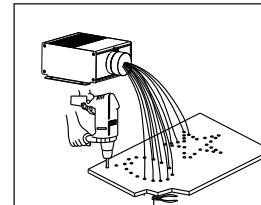
If the fiber bundle is not cut well, or example, the surface is not even, not neat, or in other bad conditions, loosen the nut and push the fiber bundle 1cm out of the connector again, and repeat the cutting procedure.



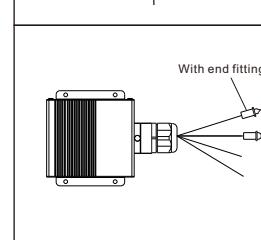
Step C :

Loosen the screws on the light engine port ferrule, and insert the ready fiber connector into the ferrule. Then tighten the screws against countersunk holes on the fiber connector.

II. Fiber strands installation on ceilings



Drill holes on the ceiling as required by the pattern. Insert the fiber strands into the holes and glue them with the resin adhesive. Cut the fiber ends flush with the ceiling or leave 2-3mm protrusion.



Fiber tail ends can be mounted with end fittings to present more optical effects.