LIGHT ENGINE
USER MANUAL

MODEL: LEB-431
LEB-432
LEC-431
LEC-432
LEB-431DMX
LEB-432DMX
LEC-431DMX
LEC-432DMX

Accessories:

Light Engine	1pc
Power Adaptor	1pc
Fiber Connector	1pc/2pc
RF Remote Controller	1pc (Optional)
Signal Cable	1pc (DMX Models Only)
User Manual	1pc

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CE RoHS

LIGHT ENGINE
USER MANUAL

Please read the User Manual carefully before operation. Our company reserves the right to interpret the contents of the Manual. The appearance of light engines of different models may vary from the above pictures. Specifications, appearance, functionality, software, etc. are subject to change without prior notice.

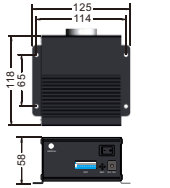
Please read the User Manual carefully before use. If you have any questions about the safe operation and maintenance of light engines, please contact the dealer.

Usage Guidelines

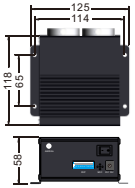
Safety Notes:

1. Make sure that the power supply voltage is compatible with this light engine;
2. Prohibit use at high temperature (≤40℃);
3. Prohibit installation in a small enclosed space to avoid insufficient heat dissipation;
4. Prohibit placing in rain or humid places to prevent the risk of electric shock;
5. Prohibit looking directly at the LED module through the port of the light engine;

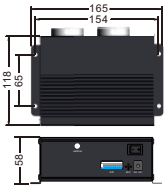
Dimensions of the Light Engine



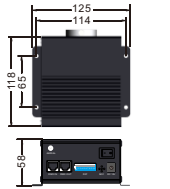
LEB-431/LEC-431



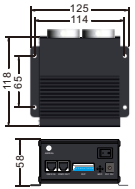
LEB-432



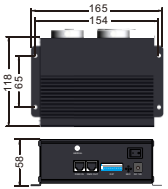
LEC-432



LEB-431DMX/LEC-431DMX



LEB-432DMX



LEC-432DMX

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

I. Technical parameters:

Item No.	LEB-431	LEB-432	LEC-431	LEC-432
Input Voltage	12V DC	12V DC	12V DC	12V DC
Power Consumption	12 W	20 W	17 W	27 W
Light Source	1-4X3W	2-4X3W	1-4X3W	2-4X3W
Emitting Colors	RGBW	RGBW	RGBW	RGBW
LED Lifespan	50000H	50000H	50000H	50000H
Twinkle	×	×	✓	✓
DMX 512	×	×	×	×
Sound Control	✓	✓	✓	✓
Remote Control	Optional	Optional	Optional	Optional
BLE	Optional	Optional	Optional	Optional
Dimensions	L125XW118XH58 mm	L125XW118XH58 mm	L125XW118XH58 mm	L165XW118XH58 mm
Weight	0.47Kg	0.50Kg	0.55Kg	0.70Kg
Fiber Connector Aperture	Φ18mm/Φ20mm	Φ18mm/Φ20mm	Φ18mm/Φ20mm	Φ18mm/Φ20mm
Maximum Fiber Strands	Φ0.75X540PCS	2-Φ0.75X540PCS	Φ0.75X540PCS	2-Φ0.75X540PCS

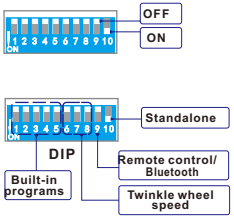
II. Fiber optic light engine settings

1.Those light engines are regular models with the following control modes:

Working Status	Built-in Programs	Remote control	DMX controller	Sound	APP
Standalone	✓	✓	×	✓	✓

2.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 for "ON", and the flat switches are for "OFF".)



* Please refer to the Table on Page 8-9 for remote control details.
* Please refer to the Table on Page 10-11 for the built-in programs and twinkle wheel speed.
* On the first page of the User Manual, there are QR codes for downloading the corresponding mobile APP. Before starting, ensure that the BLE parameter on the light engine is set to "ON ". After downloading the APP, connect the light engine on the APP and operate. If a new mobile phone fails to connect because the light engine has already been connected to other mobile phones, press and hold the remote control button " " while turning on the light engine to disconnect its Bluetooth connection. Then search again and pair the light engine with the new mobile phone. For specific connection steps and operation control methods, please refer to the APP User Manual (available from the sales).

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

I. Technical parameters:

Item No.	LEB-431DMX	LEB-432DMX	LEC-431DMX	LEC-432DMX
Input Voltage	12V DC	12V DC	12V DC	12V DC
Power Consumption	12 W	20 W	17 W	27 W
Light Source	1-4X3W	2-4X3W	1-4X3W	2-4X3W
Emitting Colors	RGBW	RGBW	RGBW	RGBW
LED Lifespan	50000H	50000H	50000H	50000H
Twinkle	×	×	✓	✓
DMX 512	✓	✓	✓	✓
Sound Control	✓	✓	✓	✓
Remote Control	Optional	Optional	Optional	Optional
BLE	Optional	Optional	Optional	Optional
Dimensions	L125XW118XH58 mm	L125XW118XH58 mm	L125XW118XH58 mm	L165XW118XH58 mm
Weight	0.47Kg	0.50Kg	0.55Kg	0.70Kg
Fiber Connector Aperture	Φ18mm/Φ20mm	Φ18mm/Φ20mm	Φ18mm/Φ20mm	Φ18mm/Φ20mm
Maximum Fiber Strands	Φ0.75X540PCS	2-Φ0.75X540PCS	Φ0.75X540PCS	2-Φ0.75X540PCS

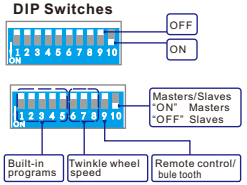
II. Light Engine Settings

1.These light engines are DMX512 models, and can be used in two ways: either as a single independent light engine or in a Master/Slave configuration with several light engines connected together using DMX cables. The control methods under different working conditions are as follows:

Working Status	Master/ Slave	Built-in Programs	Remote Control	DMX Controller	Sound	APP
Standalone	Master	✓	✓	×	✓	✓
	Slave	×	×	✓	×	×
Multiple Units in Series	Master	✓	✓	×	✓	✓
	Slave	×	×	✓	×	×

2. The settings of a Master light engine

The DMX512 light engines are regarded as Masters when the 10th DIP switch is 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 1th 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.

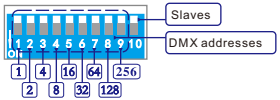


*** Please refer to the Table on Page 10-11 for built-in programs and twinkle wheel speed.**

3. The settings of a Slave light engine

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

The DMX address code is calculated as a binary combination.



DIP Switches	DMX Address
	001
	002
	003
	004
	005
	006
	007
	008
	009
	010

DIP Switches	DMX Address
	011
	012
	013
	014
	015
	016
	017
	018
	019
	020

DIP Switches	DMX Address
	021
	022
	023
	024
	025
	026
	027
	028
	029
. . .	. . .

(2) DMX Channels: 8 Channels

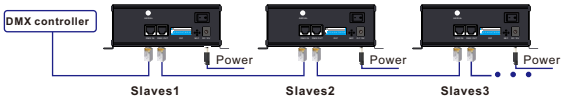
Ch1: Red Ch2: Green Ch3: Blue Ch4: White Ch5: Fade Time Ch6:Dimmer Ch7: Flash Ch8: Twinkle Speed **(Invalid for LEB models)**

Remarks:

* Four DMX Channels setting is also available upon request.

* When connected to a DMX panel, usually the light engine is requested to have 4 channels.

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



(1) A DMX controller or console is required for this connection.

(2) All the light engines in the group need to be of the same model and set to slaves.

(3) All the light engines need to set the DMX addresses "001" if they need to have synchronous performance.

(4) If each light engine is to be programmed individually, set 001 for the first machine,009 for the second, and so on.(Each subsequent light engine is incremented by 8.)

5. The connection diagram for Master-slave control mode.

Master-Slave control:

(1) 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.

(2) All the light engines in the group need to be of the same model.

(3) One and only one light engine is set as a Master, and the rest are set as Slaves with the same DMX address,"001".

(4) Same as the standalone operation, the Master can either run the built-in programs or be controlled via the remote control or APP.

(5) All Slaves will follow the Master to work synchronously.

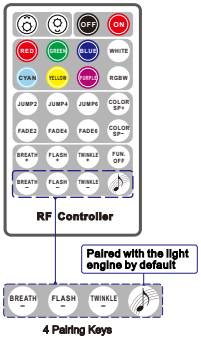
(6) This Master can be located anywhere in the group.

III. Remote control Instructions:

(1) 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

(2) Before using the remote control, ensure that the remote control has a fresh button cell. **(The remote control does not come with batteries. You need to purchase CR2032H . on your own).**

(3) If necessary, you can pair the current light engine with more remotes. It is also possible to pair the current remote with more light engines.



How to pair the remote control and the machine:

(1) Press and hold any one of the four pairing keys on the remote control.

(2) Turn on the power of the light engine, and the machine starts to work.

(3) The light engine will flash 2 times slowly and 3 times quickly.

(4) The remote control and the machine are successfully paired.

(5) Release the pairing key.

The pairing rule of the remote control and the light engine:

(1) The four keys in the last row of the remote control,  are the four pairing keys.

(2) Each Pairing Key can be paired with multiple light engines and will have the same effect.

(3) Each light engine can be paired with at most four different Pairing Keys, namely  respectively. These four Pairing Keys with different icons can come from different remote controls.

(4) Once the device is successfully paired with the remote control, the pairing function cannot be canceled, but can be overwritten.

(5) For the same light engine, a new pairing key will overwrite the previous pairing key with the same icon.

(6) The light engine can be paired no matter it is a master or a slave machine.

The buttons 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、Y、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:

(1) 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.

(2) The light engine has a memory function. When turned on, the light engine runs the last program before it is turned off.

(3) To disconnect the Bluetooth connection: press and hold the remote control button “ ” when the paired light engine is powered on.

IV . Mobile APP Control

On the first page of the User Manual, there are QR codes for downloading the corresponding mobile APP. Before starting, ensure that the BLE parameter on the light engine is set to “ON ”. After downloading the APP, connect the light engine on the APP and operate. If a new mobile phone fails to connect because the light engine has already been connected to other mobile phones, press and hold the remote control button “ ”while turning on the light engine to disconnect its Bluetooth connection. Then search again and pair the light engine with the new mobile phone. For specific connection steps and operation control methods, please refer to the APP User Manual (available from the sales).

The table of the built-in programs of the Master light engine

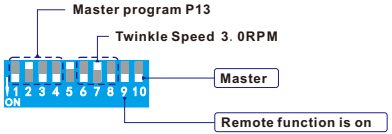
Built-in Programs List of the Master (1th to 5th DIP Switches)

Pro.No.	DIP Switches Settings (1st to 5th)	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
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
(6thto 8th DIP Switches of LEC models)

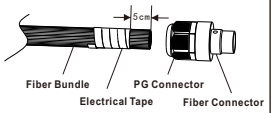
DIP Switches Settings (6th to 8th)	Function
	0.5RPM
	1.0RPM
	1.5RPM
	2.0RPM
	3.0RPM
	4.0RPM
	6.0RPM

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



Fiber Bundle Assembly and Installation

1.Fiber connectors/couplings assembly

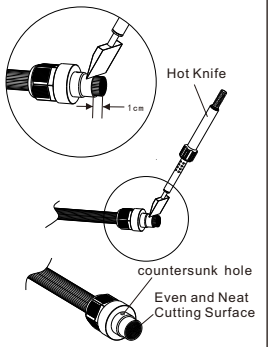


Step A:

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.



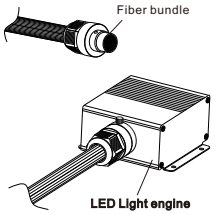
Step B:

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 the fiber bundle flush with the fiber connector. The angle between the hot knife and the fiber port is suggested to be 25-30 degrees as shown in the left pictures

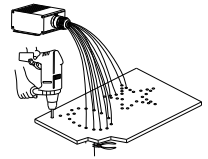
Remarks:

If the fiber bundle is not cut well, for 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.



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.

2. Fiber strands installation on ceilings



1. 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

2. The fiber strands cannot be folded in half, and the bending radius should not be less than 10mm.