

# **LIGHT ENGINE USER MANUAL**

**MODEL: LER-4121DMX  
LER-3001DMX  
LER-3001TWDMX**

**Packing List:**

Light Engine .....	1 Unit
Fiber Connector.....	1 PC
Remote Control.....	1 PC (Optional)
Power Cord.....	1 PC
Signal Cable.....	1 PC
Fuse.....	1 PC
User Manual.....	1 PC



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# 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.

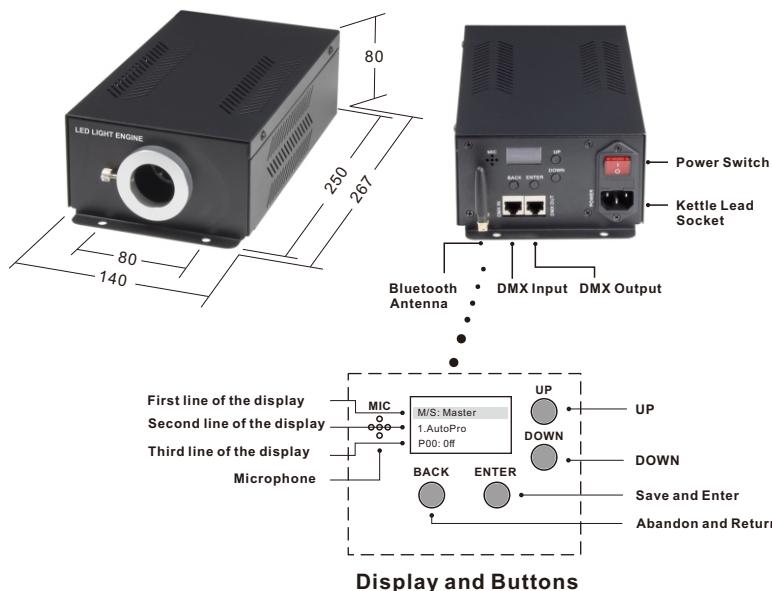
## Usage Guidelines

### Safety Warnings:

1. Must be installed by a qualified professional.
2. Make sure that the power supply voltage is compatible with this light engine;
3. Prohibit use at high temperature ( $\leq 40^{\circ}\text{C}$ );
4. Prohibit installation in a small enclosed space to avoid insufficient heat dissipation;
5. Prohibit placing in rain or humid places to prevent the risk of electric shock;
6. Prohibit looking directly at the LED module through the port of the light engine;

## CHAPTER1 LER-4121DMX

### I. Dimensions of the Light Engine



## II. Technical Parameters

Item No.	LER-4121DMX	Sound Control	✓
Input Voltage	100V-240V AC	Remote Control	Optional
Power Consumption	50W Max	BLE	Optional
Light Source	1-4x12W	Dimensions	L267XW140XH80 mm
Emitting Colors	RGBW	Weight	2.0Kg
LED Lifespan	50000H	Fiber Connector Aperture	$\Phi 20/24/28\text{mm}$ or $\Phi 30\text{mm}$
Twinkle	×	Maximum Fiber Strands	$\Phi 0.75\text{X}1250\text{PCS}$
DMX 512	✓		

## III. Light Engine Settings

1. This light engine is a DMX512 model, 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:

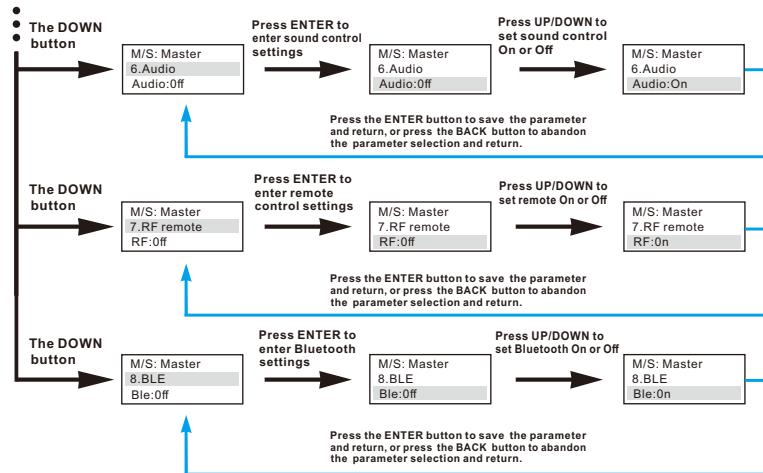
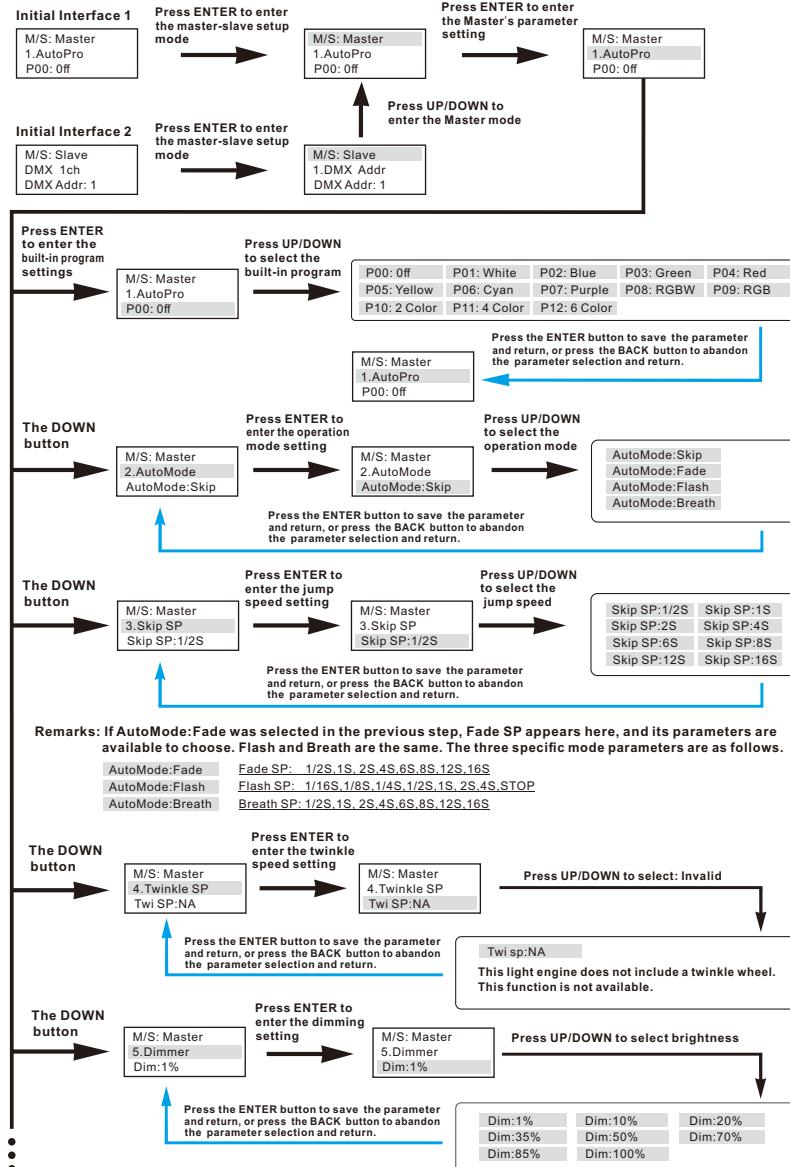
Working Status	Master/ Slave	Built-in Programs	Remote Control	DMX Controller	Sound	APP
Standalone	Master	✓	✓	✗	✓	✓
	Slave	✗	✗	✓	✗	✗
Multiple Units in Series	Master	✓	✓	✗	✓	✓
	Slave	✗	✗	✓	✗	✗

### 2. Operating instructions for the display and buttons

The Display	The First Line	The first-level menu: Master/Slave
	The Second Line	The second-level menu: the built-in programs or functions
	The Third Line	The third-level menu: the parameters
The Buttons	BACK	BACK: Pressing the BACK button will abandon the existing selection and return to the previous level of the menu. Pressing continuously will return to the work status display and switch between multiple pages
	ENTER	1. When no menu is selected, pressing the ENTER button will enter the first-level menu. 2. When there is a menu selected, pressing the ENTER button will: a. save the existing selection and enter the next-level menu; b. save the existing selection and return to the second-level menu when the selected menu is a third-level one.
	UP/DOWN	1. When no function or parameter is selected, pressing the UP/DOWN buttons returns to the previous operation interface. 2. When a function or parameter is selected, pressing the UP/DOWN keys cycles through the currently available function or parameter menu. Press the ENTER key to save or the BACK key to cancel.

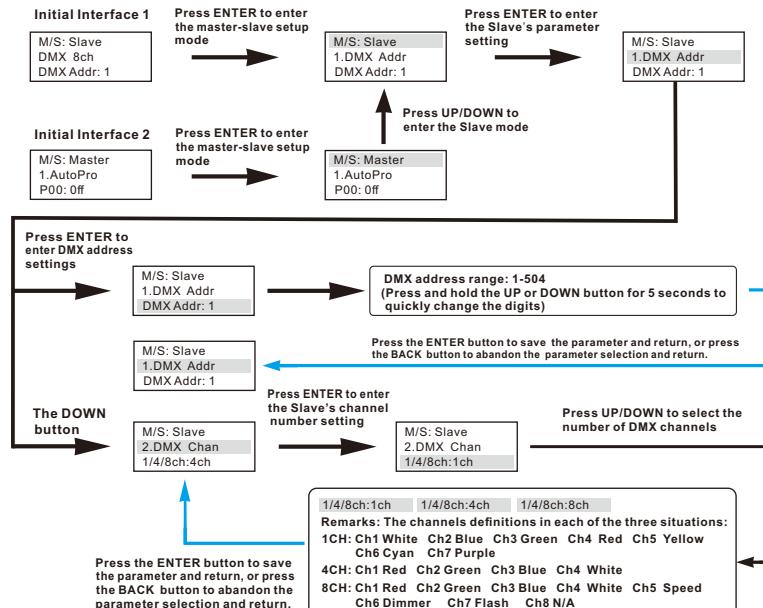
### 3. The Settings of a Master light engine

After the light engine is powered on, pressing the BACK key will have one of the following two initial interfaces appear on the OLED display.



### 4. The Settings of a Slave light engine

After the light engine is powered on, pressing the BACK key will have one of the following two initial interfaces appear on the OLED display.



\* If all light engines operate synchronously, the DMX address of all slave machines should always set as "1".

- \* If each machine needs to be individually programmed and controlled using a DMX512 console, the DMX address of the first Slave machine should be 1. The second one needs to be 9 (the channels number plus 1), and the third needs to be 17 and so on

#### 5. Connection diagram of Slave light engines when there is a DMX console or controller.



#### 6. Connection diagram of light engines in Master and Slave Control Mode.



#### IV. Use of the remote control:

##### 1. Before using the remote control:

- (1) There is an ON/OFF switch on the right side of the remote control, which needs to be pulled to the "ON" state (pulled upward).
- (2) Select the correct battery model 23A/12V and ensure it has sufficient power.
- (3) The remote control needs to be paired with the light engine before use (Factory paired).
- (4) After the pairing is completed, the remote control is ready for use.
- (5) The light engine accepts the control of the paired remote control only.

##### 2. How to pair the remote control with a light engine:

- (1) Set the light engine to be a Master, and turn on the remote control function in the display. The display is as shown on the right.

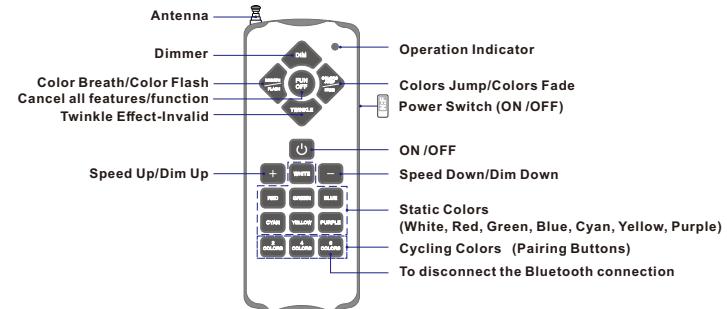
M/S: Master  
6.RF remote  
RF:On

- (2) Press and hold any of the three pairing buttons on the remote control and turn on the light engine. When the light engine flashes 2 times slowly and 3 times quickly, the pairing is done.

##### 3. The pairing rules of the remote control and the light engine:

- (1) The three buttons on the bottom of the remote control are the pairing buttons.
- (2) Each of the three buttons can be paired with multiple light engines and will have the same effect.
- (3) Each light engine can only be paired with a maximum of three buttons with different functions. These three buttons can come from different remote controls
- (4) Once the light engine is successfully paired with a remote control, the pairing function cannot be canceled, but can be overwritten.
- (5) For the same light engine, the pairing button with the same function can overwrite the previous pairing button.

#### 4. Remote control button function description:



##### Remarks:

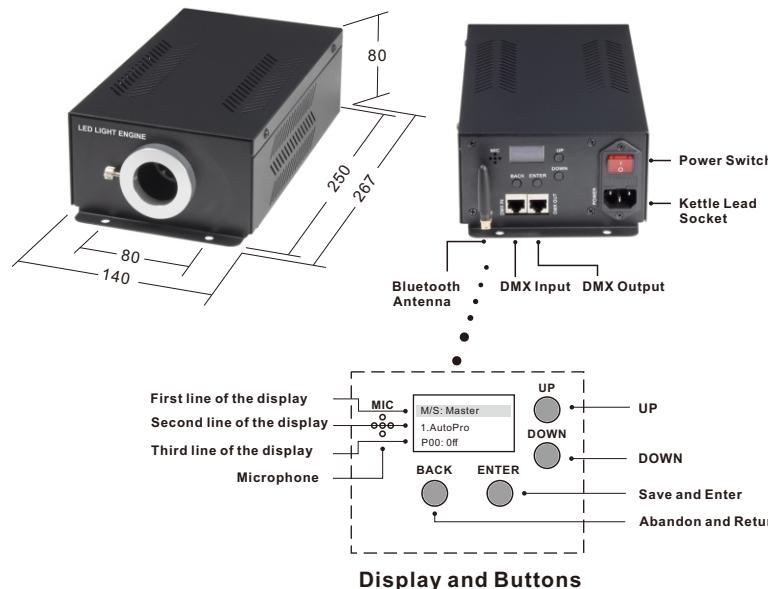
- (1) Operation overview: Please always operate the remote control in the following order. Firstly, choose colors; secondly, choose a function/feature; thirdly, press "+" or "-" to adjust.
- (2) Breath/Flash button: For single and cycling colors, press it to select one of the Breathing and Flashing features, and press it again to select the other. Then press the "+" or "-" button to adjust the color Breathing/Flashing rate.
- (3) Colors Jump/Fade button: For cycling colors, press it to select one of the Jumping and Fading features, and press it again to select the other. Then press the "+" or "-" button to adjust the colors Jumping or Fading rate.
- (4) DIM button: Press it and the light engine will automatically output medium or full brightness according to its current brightness value. Then press the "+" or "-" button to dim up or down the light engine
- (5) Twinkle button: This button does not work.
- (6) When FUN OFF is pressed, the light engine will emit single or cycling colors (Jump/Fade) with no other features.
- (7) The remote control can work alone or together with the APP and/or the OLED display buttons.
- (8) The light engine has a memory function. When it shuts down or loses power during normal operation, the machine will automatically resume the last program on restart.
- (9) To disconnect the Bluetooth connection: press and hold the remote control button " " when the paired light engine is powered on.

#### V . 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).

## CHAPTER2 LER-3001DMX

### I. Dimensions of the Light Engine



### II. Technical Parameters

Item No.	LER-3001DMX	Sound Control	✓
Input Voltage	100V-240V AC	Remote Control	Optional
Power Consumption	30W Max	BLE	Optional
Light Source	1-24W	Dimensions	L267XW140XH80 mm
Emitting Colors	White (3000/6000K)	Weight	2.0Kg
LED Lifespan	50000H	Fiber Connector Aperture	Φ 20/24/28mm or Φ 30mm
Twinkle	✗	Maximum Fiber Strands	Φ 0.75X1250PCS
DMX 512	✓		

### III. Light Engine Settings

1. This light engine is a DMX512 model, 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:

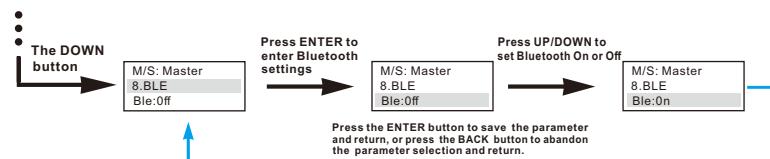
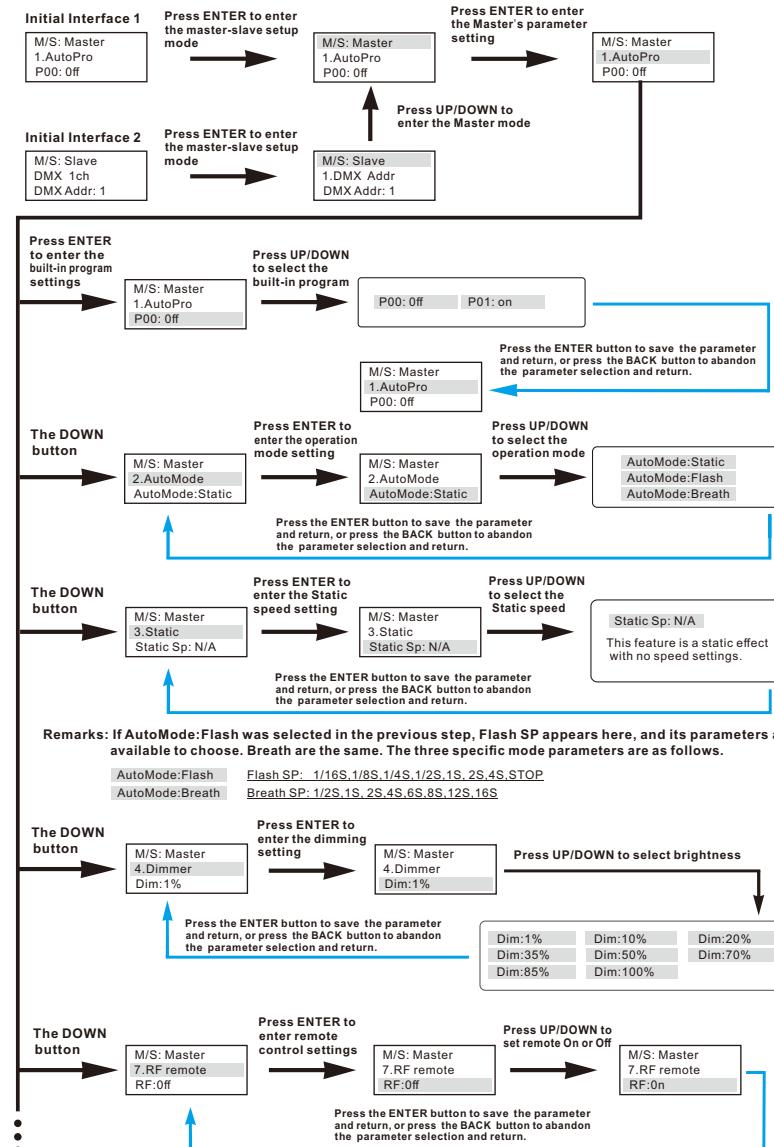
Working Status	Master/Slave	Built-in Programs	Remote Control	DMX Controller	Sound	APP
Standalone	Master	✓	✓	✗	✓	✓
	Slave	✗	✗	✓	✗	✗
Multiple Units in Series	Master	✓	✓	✗	✓	✓
	Slave	✗	✗	✓	✗	✗

### 2. Operating instructions for the display and buttons

The Display	The First Line	The first-level menu: Master/Slave
	The Second Line	The second-level menu: the built-in programs or functions
	The Third Line	The third-level menu: the parameters
The Buttons	BACK	BACK: Pressing the BACK button will abandon the existing selection and return to the previous level of the menu. Pressing continuously will return to the work status display and switch between multiple pages
	ENTER	1. When no menu is selected, pressing the ENTER button will enter the first-level menu. 2. When there is a menu selected, pressing the ENTER button will: a. save the existing selection and enter the next-level menu; b. save the existing selection and return to the second-level menu when the selected menu is a third-level one.
	UP/DOWN	1. When no function or parameter is selected, pressing the UP/DOWN buttons returns to the previous operation interface. 2. When a function or parameter is selected, pressing the UP/DOWN keys cycles through the currently available function or parameter menu. Press the ENTER key to save or the BACK key to cancel.

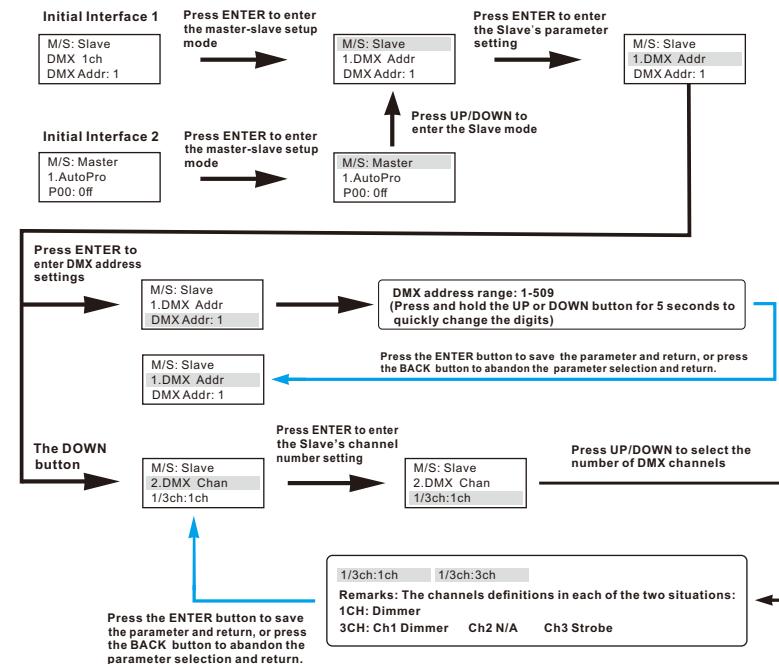
### 3. The Settings of a Master light engine

After the light engine is powered on, pressing the BACK key will have one of the following two initial interfaces appear on the OLED display.



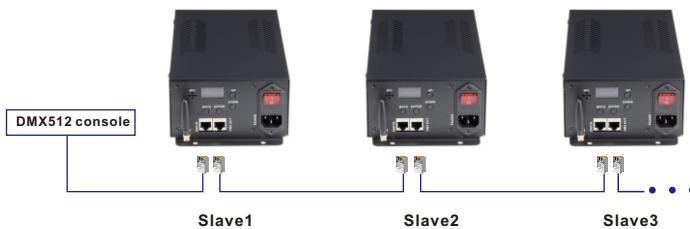
#### 4. The Settings of a Slave light engine

After the light engine is powered on, pressing the BACK key will have one of the following two initial interfaces appear on the OLED display.



- \* If all light engines operate synchronously, the DMX address of all slave machines should always set as "1".
- \* If each machine needs to be individually programmed and controlled using a DMX512 console, the DMX address of the first Slave machine should be 1. The second one needs to be 4 (the channels number plus 1), and the third needs to be 7 and so on.

**5. Connection diagram of Slave light engines when there is a DMX console or controller.**



**6. Connection diagram of light engines in Master and Slave Control Mode.**



**IV. Use of the Remote Control**

**1. Before using the remote control:**

- (1) Select the correct battery model 23A/12V and ensure it has sufficient power.
- (2) The remote control needs to be paired with the light engine before use.  
(Factory paired ).
- (3) After the pairing is completed, the remote control is ready for use.
- (4) The light engine accepts the control of the paired remote control only.

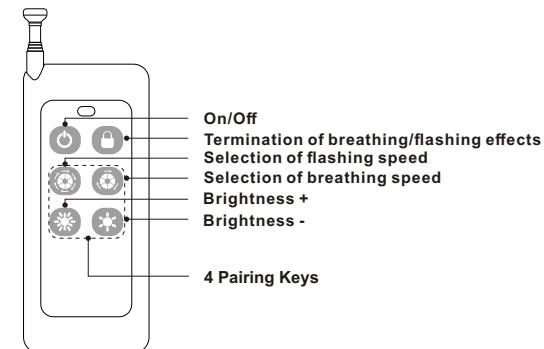
**2. How to pair the remote control with the light engine:**

- (1) Press and hold any of the four buttons on the remote control and turn on the light engine. When the light engine flashes 2 times slowly and 3 times quickly, the pairing is done.
- (2) To disconnect the Bluetooth connection: press and hold the remote control button  when the paired light engine is powered on.

**3. The pairing rules of the remote control and the light engine:**

- (1) Each of the four buttons on the remote control can be paired with multiple light engines and will have the same effect.
- (2) Each light engine can only be paired with a maximum of four buttons with different functions. These four buttons can come from different remote controls.
- (3) Once the light engine is successfully paired with a remote control, the pairing function cannot be canceled, but can be overwritten.
- (4) For the same light engine, the pairing button with the same function can overwrite the previous pairing button.

**4. Remote control button function description:**

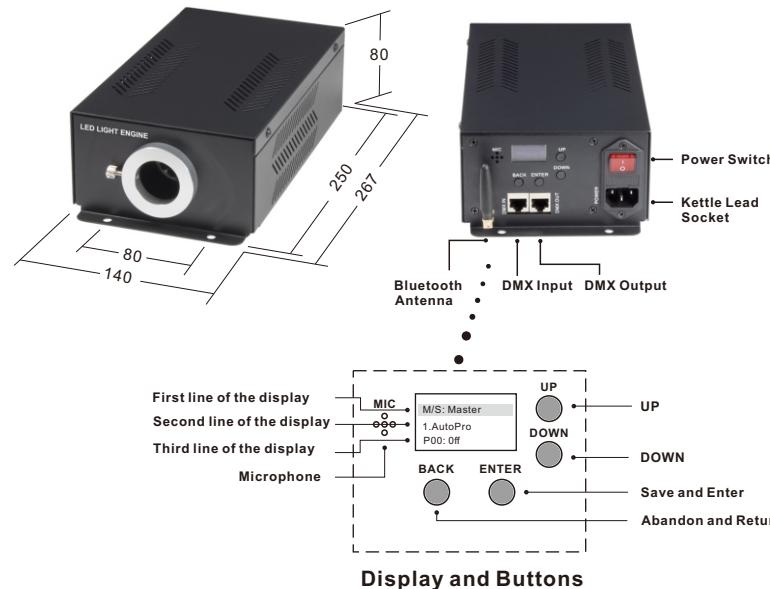


**V . Mobile APP Control**

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).

## CHAPTER3 LER-3001TWDMX

### I. Dimensions of the Light Engine



### II. Technical Parameters

Item No.	LER-3001TWDMX
Input Voltage	100V-240V AC
Power Consumption	30W Max
Light Source	1-2x25W
Emitting Colors	White(2700-6000K)
LED Lifespan	50000H
Twinkle	×
DMX 512	✓

### III. 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:

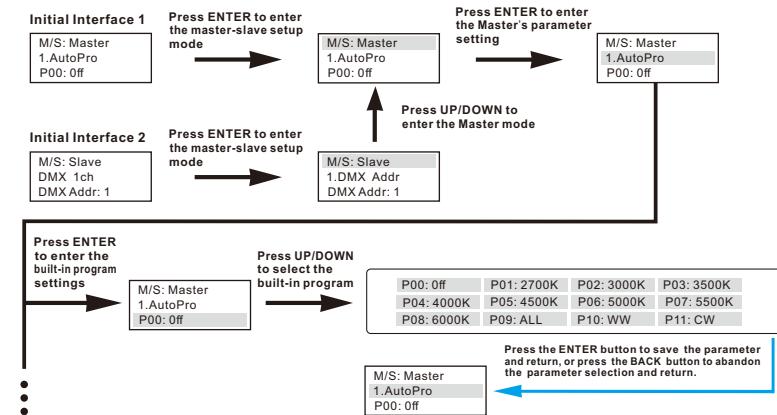
Working Status	Master/Slave	Built-in Programs	Remote Control	DMX Controller	Sound	APP
Standalone	Master	✓	✓	✗	✓	✓
	Slave	✗	✗	✓	✗	✗
Multiple Units in Series	Master	✓	✓	✗	✓	✓
	Slave	✗	✗	✓	✗	✗

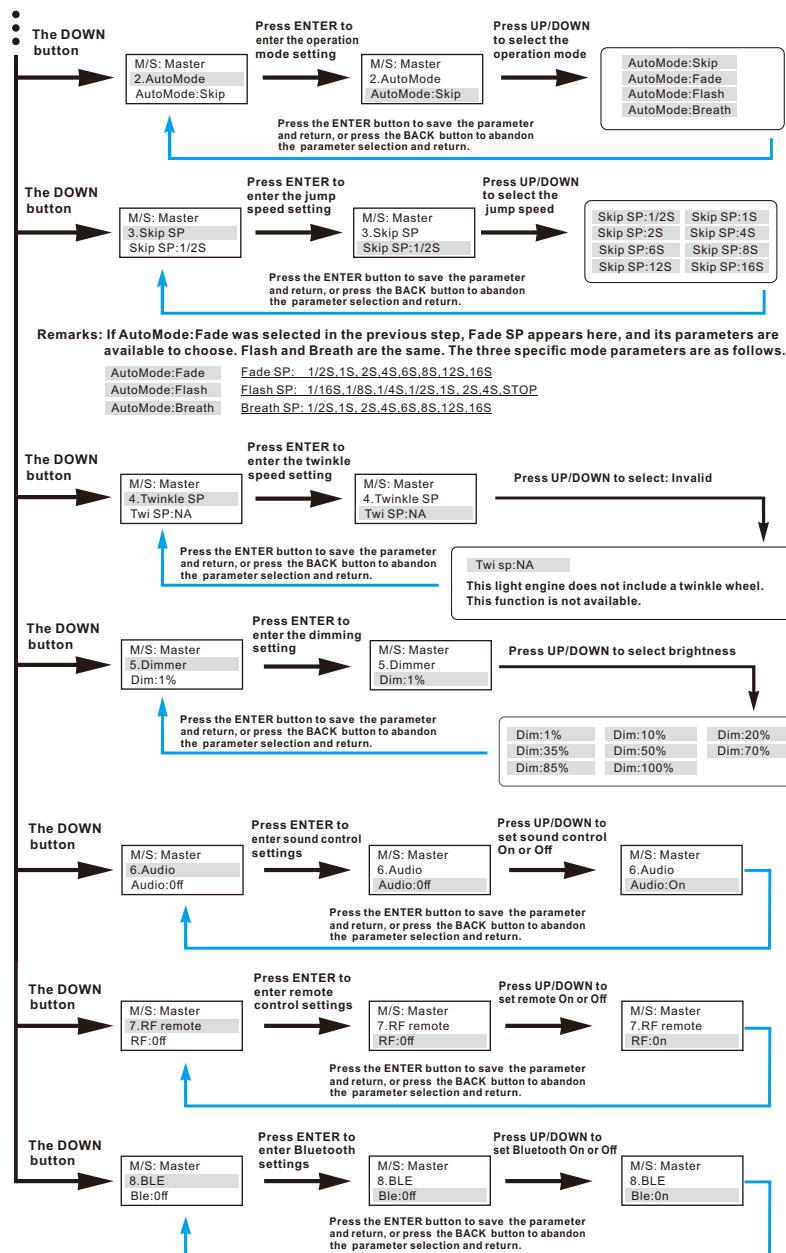
### 2. Operating instructions for the display and buttons

The Display	The First Line	The first-level menu: Master/Slave
	The Second Line	The second-level menu: the built-in programs or functions
	The Third Line	The third-level menu: the parameters
The Buttons	BACK	BACK: Pressing the BACK button will abandon the existing selection and return to the previous level of the menu. Pressing continuously will return to the work status display and switch between multiple pages
	ENTER	1. When no menu is selected, pressing the ENTER button will enter the first-level menu. 2. When there is a menu selected, pressing the ENTER button will: a. save the existing selection and enter the next-level menu; b. save the existing selection and return to the second-level menu when the selected menu is a third-level one.
	UP/DOWN	1. When no function or parameter is selected, pressing the UP/DOWN buttons returns to the previous operation interface. 2. When a function or parameter is selected, pressing the UP/DOWN keys cycles through the currently available function or parameter menu. Press the ENTER key to save or the BACK key to cancel.

### 3. The Settings of a Master light engine

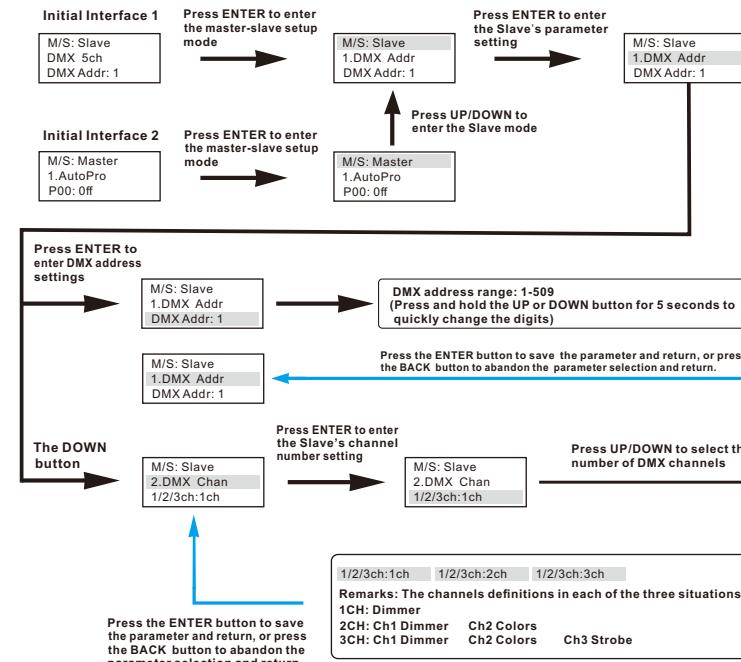
After the light engine is powered on, pressing the BACK key will have one of the following two initial interfaces appear on the OLED display.





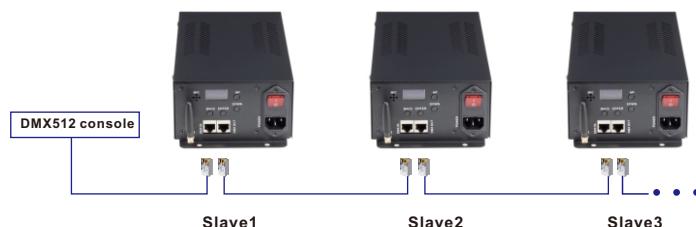
#### 4. The Settings of a Slave light engine

After the light engine is powered on, pressing the BACK key will have one of the following two initial interfaces appear on the OLED display.



- \* If all light engines operate synchronously, the DMX address of all slave machines should always set as "1".
- \* If each machine needs to be individually programmed and controlled using a DMX512 console, the DMX address of the first Slave machine should be 1. The second one needs to be 4 (the channels number plus 1), and the third needs to be 7 and so on.

#### 5. Connection diagram of Slave light engines when there is a DMX console or controller.



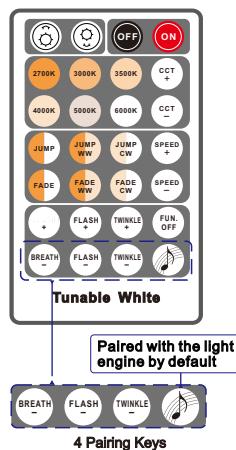
## 6. Connection diagram of light engines in Master and Slave Control Mode.



## IV. Remote control Instructions:

### 1. Before using the remote control:

- (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 CR2025/2032 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.



### 2. 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 light engine to activate pairing.
- (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.



### 3. 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.



## 4. The buttons of the remote control

	Dimming +/- (7-tier) ON/OFF
	Static color temperature (2700K,3000K,3500K,4000K,5000K,6000K) CCT +/-: Increase/decrease the color temperature
	JUMP: 2700K, 6000K Jump JUMP WW: 2700K, 4000K Jump JUMP CW: 4500K, 6000K Jump FADE: 2700K~6000K Fade FADE WW: 2700K~4000K Fade FADE CW: 4500K~6000K Fade SPEED +/-: Color Temperature Cycling Speed Adjustment (7-tier)
	BREATH +/- : Breathing Effect. (7-tier) FLASH +/- : Strobe Effect. (7-tier speed) TWINKLE +/- : This feature is disabled. FUN.OFF : Termination of Breathe / Flashing / Sound control 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:

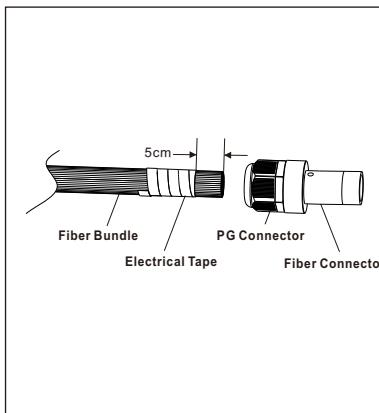
- (1) Press "Breath" or "Flash", the light engine will breathe or flash in a static color temperature of the last emitted color. If "FUN.OFF" is pressed, the current breathing, flash will be turned off, and the light engine will resume the last program.
- (2) The light engine has a memory function. When 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.

## V . 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).

## CHAPTER4 Fiber Bundle Assembly and Installation

### 1.Fiber connectors/couplings assembly

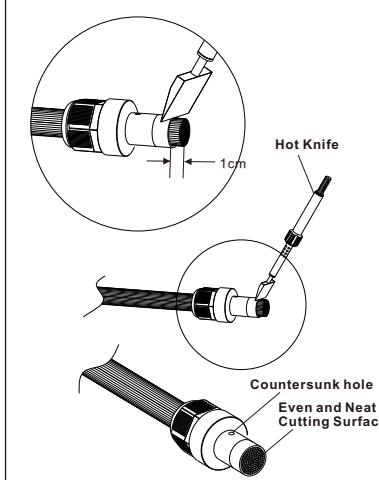


#### Step A:

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.

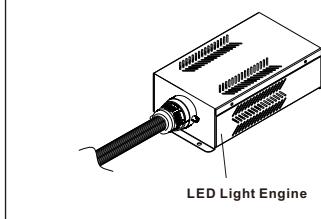


#### Step B:

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:

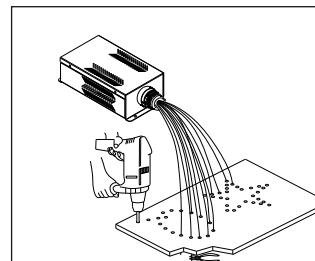
If the fiber bundle is not cut well, for example, the surface is not even, not neat, or in other bad conditions, loosen the nut and push the fiber bundle 1cm out of the connector again, and repeat the cutting procedure.



#### Step C:

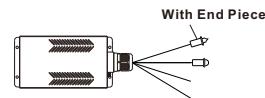
Loosen the screw on the light engine port ferrule, and insert the ready fiber connector into the ferrule. Then tighten the screw against the countersunk hole on the fiber connector.

### 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 10 times of its diameter.



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

### 3.Side-glow fiber cable connection method

