SL300 Searchlight
User Manual   V1.0

Content

Product Overview

The Service Statement

1. This manual has sought to be correct and complete in the contents during the edition process, but we do not guarantee that there are no errors or omissions in this manual. The company reserves the right to change the hardware and software specifications mentioned in this manual at any time without prior declaration;

2. This specification shall not be copied, transmitted, transcribed, or stored in a retrievable system, or translated in any language without the authorization of the Company;

3. This product supports integrated applications. Users can add adapter boards, but it is strictly forbidden to disassemble the device privately. Once disassembled, it will be deemed to automatically give up the right to after-sales service. Therefore, we will not be responsible for any losses caused thereby.

Brief Introduction

SL300 is a bright, 2-axis stabilized gimbal searchlight, providing excellent illumination effect for operations. It also supports remote control to change light color and brightness and the pitch control can reach up to 90°.

The searchlight weighs only 840g and has the power of 45W. 10° two-lens is built-in that emits a sharp beam, and the effective illumination distance is as far as 400 meters. SL300 has a spot diameter up to 15 meters at 100m height and the illuminated area is about 177 square meters.

SL300 UAV lighting device can be applied in many fields like night inspection, investigation and evidence collection, direction guide, search and rescue, and other night operations.

Technical Parameters

The searchlight supports the control of the UAV's own remote control link. After the external PWM signal line and simple setting, the remote control signal trigger lighting, Angle, color and brightness and other control can be realized.

| Dimensions	130*100*160mm
Weight	840g
Material	aluminium alloy

Voltage	DC 12-26V
Battery type	3S-6S Li-ion battery
Power interface	XT30
Operating current	2.3A@18V
Total power consumption	45W
Brightness	＞20000 lumens
Effective illumination distance	＞300 meters
Spot diameter	15m@100m flight altitude
Beam angle	10° super-concentrating illumination
Lighting mode	white light/blue light/yellow light switch, three brightness (high/middle/low)
Pitch control	90°
Cooling mode	intelligent temperature control

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- There may be small errors in manual measurement specifications, please refer to the actual product.
- When the searchlight is installed, it should not interfere with the front gimbal camera and the aircraft fuselage to avoid stalling of the pitch servo, otherwise it may cause serious damage to the internal electronic components of the equipment.

Interface Definition

The body composition and main interface are shown in the following figure. Referring to this figure during installation and remote control setting.
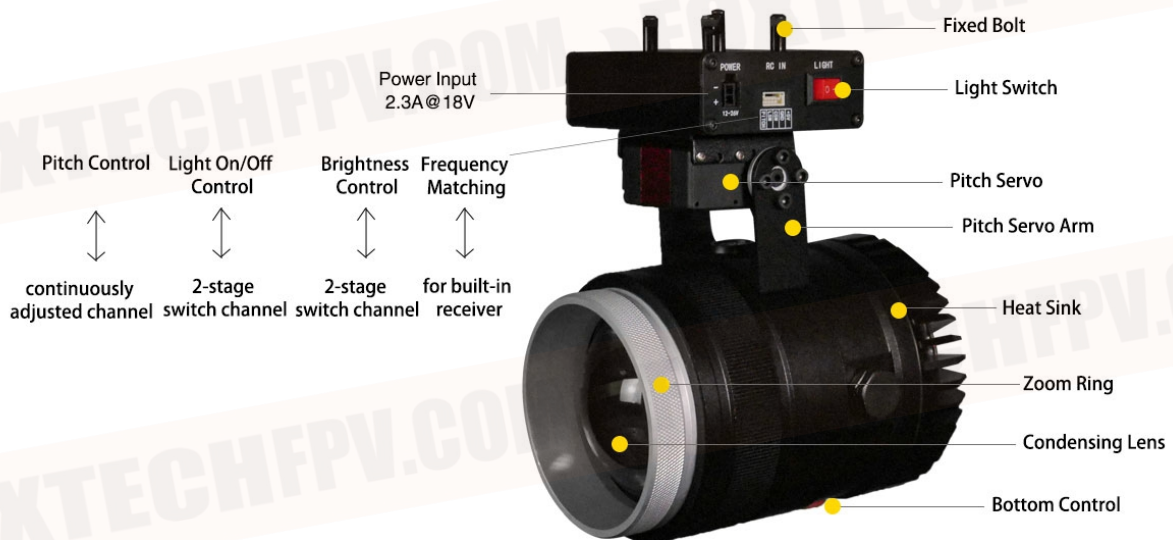
⚠ ● The main body of the searchlight is made of aluminum alloy and the lens is made of glass. If the surface is dirty, you can wipe it with clean water or alcohol. Do not use organic solvents such as circuit board cleaner or turpentine to avoid damage to the body or lens.

Packing List

38mm
24mm

165mm

170mm

240mm
280mm

1x Carrying Case

130mm   100mm

1x SL300 Lighting Device

2x Spanner

3x Power Supply Cable

4x Screw   1x PWM Signal Control Cable

Installation and Usage

How to mount to multi-rotors

In order to adapt to different UAV flight platforms, 4 mounting holes are reserved by default when the product is shipped. The detailed spacing is shown in the figure below. Users can design the adapter board to install the searchlight on the drone. It should be noted that there are high and low frequency vibrations during the flight of the UAV. Therefore, the searchlight should be installed firmly and the light channel is unobstructed. Besides, it should not interfere with the fuselage to avoid stalling of the servo, otherwise it may cause serious damage to the internal electronic components of the equipment.
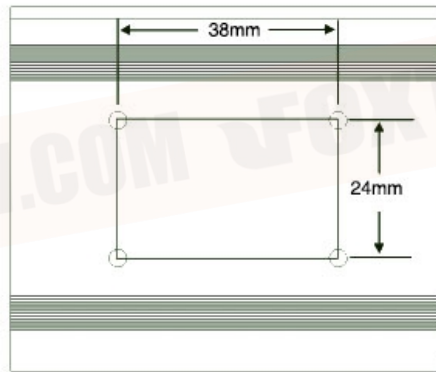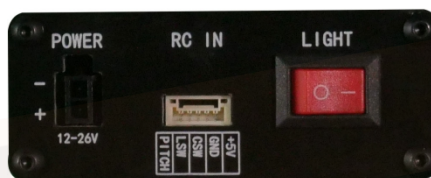
Hole Spacing

Power Supply and Signal Cable Connection

1. The searchlight supports wide voltage input. To ensure stable long-term operation, it is recommended to use a 12V~26V DC power supply with an output current greater than 2.5A@18V (power output greater than 45W). For the M600 series drones, there is a 18V DC power output (3.0A current) at the bottom to power the searchlight. If the power interface is already occupied by the front gimbal camera, the user can use the other onboard power interface to power the searchlight.

2. The external power supply interface adopts XT30-Male by default. Insert black plug into the device POWER interface and start the searchlight with 12V-26V DC. The XT30 interface has certain protection ability, but the searchlight control unit is not waterproof. In order to be better suitable for light rain or wet work scenarios, it is recommended for you to use waterproof glue or tape;

M600 bottom interface   Onboard switch, power supply port and control signal interface

3. After the drone is powered on, the searchlight can be manually turned on through the LIGHT switch (In the state of manually turning on the light, color switching and brightness adjustment can be performed, but the remote control lighting function is not supported);

4. A fast control button (red round button) is reserved below the searchlight, which is valid when the LIGHT switch is on. The specific operation functions are as follows:

  ① When the light is on, short press the red button, adjust the brightness of the searchlight, and change "high, medium, low and off" in turn;

  ② When the light is on, long press the red button, adjust the color of the searchlight, and change the "white light, blue light, yellow light" in turn;

5. When connecting the signal cable, pay attention to the interface identification. The upper is the S

signal, the middle is the + power supply, and the lower is -ground wire. After the searchlight is powered on, the output of the power pin in the signal interface is +5V. When connecting to the receiver, please confirm the power supply voltage of the receiver. If the power supply of the remote control receiver is the same, you can use a 3pin DuPont line to connect; If the receiver has power supply, it is recommended that you remove the power line in the middle of the DuPont line and connect only the signal line and the ground wire;

6. The connection method of using the flight controller PWM signal output to control the searchlight is the same as the connection method of the remote controller control, which will not be repeated in this description;

7. The LINK interface in RC IN is a built-in remote control receiver frequency matching interface. For UAVs controlled by external PWM, this interface can be ignored;

8. With 18V power supply, the power consumption values of the searchlight in different brightness /colors are as follows:

	Yellow Light	Blue light	White light
High brightness	2.21A	2.25A	2.05A
Medium brightness	0.93A	0.94A	0.89A
Low brightness	0.35A	0.35A	0.35A

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- It is not recommended to directly use 3S lithium batteries to power the searchlight for a long time, because the 3S battery does not have a low-voltage protection function, and the power consumption of the searchlight is relatively large. After the battery is discharged, the voltage will drop to 11.1V or even lower, which may cause irreversible damage to the battery;
- The power cable of the searchlight is connected tightly, please press the lock catch when pulling it out to avoid damaging the power cable.

Remote Controller Settings and Operation

The product supports a variety of remote controller control. To make the description easy to understand and the setting operation more intuitive, the following takes the FLYSKY i6 remote controller(10 channels) as an example to introduce the setting of the SL300 searchlight controlled by an external PWM signal , The setting method of other drone remote controller is similar to this.
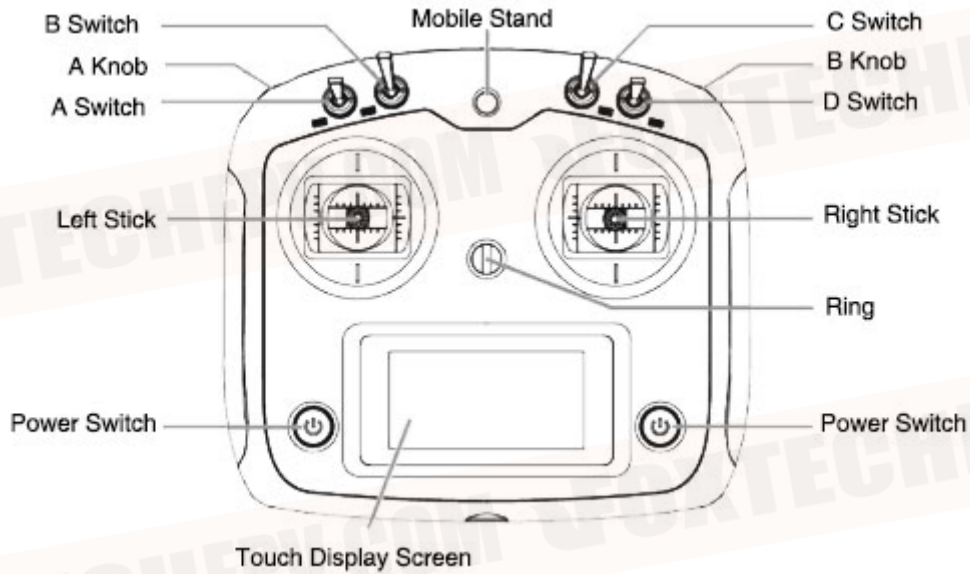
The functions of the searchlight require three channels to achieve. After the searchlight is installed on the drone, use a 3 pin DuPont cable to connect the drone's remote controller receiver channel and the searchlight control signal interface. The pitch control adopts a channel that can be continuously adjusted and can maintain the state (1000us-2000us continuously adjustable, if you only need two angles of front and down, you can connect the stage switch), the light on/off control and color/brightness control both adopt 2-stage switch channels. See the table below for details:

	Pitch angle control	light on/off control	Color / brightness control
Onboard Identification	**PITCH**	**LSW**	**CSW**
Requisite channel	continuously adjusted and maintain the state	2-stage switch	2-stage switch
PWM duty ratio	1050us~2075us 90%~115%	1000us~2000us, median 1,500us 100%~100%	
Channel	Left stick (down,up) (3 Channel, USA Hand)	A Switch (5 Channel)	D Switch (6 Channel)
Action status	Stick: down ↔ up **[down↔front]**	Switch: up ↔ down **[off ↔ on]**	**Switch: dial up and down, quickly reset** **[high brightness → medium brightness→ low brightness → off]** **Switch: dial up and down reset after 1S** **[→ Yellow light → Blue light → White light]**

The PWM value range of different brands of remote controllers is slightly different. The two-stage or three-stage switch setting method is the same as the above-mentioned FLYSKY remote controller. Please fine-tune the pitch angle control as needed to meet the duty ratio. If the UAV has few remote control channels, and light color and brightness do not need to be adjusted at any time. Only the pitch angle control signal needs to be connected at this time, and the onboard hardware switch is used to realize quick application.

The searchlight supports the remote control channel expansion device of DJI UAV. If the remote control expansion device is used for control, the PITCH control channel value needs to be set as: 1050us↔2075us (down↔up); light on/off, color/brightness control 2-stage switch channel value needs to be set as: 1000us -2000us (median 1500us)

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- The wireless control is susceptible to environmental interference. Please avoid using it in thunderstorms, because bad weather conditions may cause the remote control device to lose control.