LF-L10
Dual Light Pod User Manual V1.1

catalogue

Revise resume

version number	Revision date	Revision
V1.0	2025/11/20	-First release
V1.1	2026/1/27	-Add 1.2 component description -Add 2.5 structural shape diagram -Add 3 features

1. Product Overview

1.1. Product Introduction

The LF-L10 is a compact dual-light pod integrating a high-definition visible light camera and thermal imaging. Equipped with a lightweight three-axis gimbal and stabilization algorithms, it ensures stable and clear footage during aerial operations. With its cost-effective and low-power design, it meets the demands of firefighting, rescue, and smart security applications.

1.2. Component Description
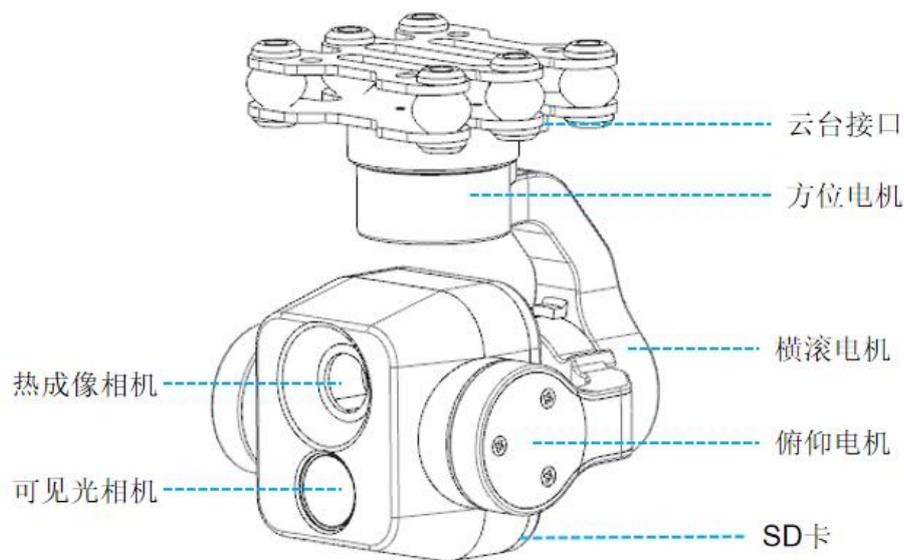
1.3. container loading list

order number	name	model	unit	quantity	remarks
1	dual light pod	LF-L10	tower	1	
2	pencil	matching harness	cover	1	
3	packing chest	packing chest	cover	1	

2. technical parameter

2.1. Overall parameters

video output interface	Ethernet port

control signal interface	1 network port, 1 TTL
Power supply area	12V ~ 36V
working current	400mA@12V
levels of protection	IP4X
working temperature	-20℃~55℃
Size (excluding shock absorbers)	61.6mm*65mm*84mm
weight	≤150g
mechanical interface type	lashing eye

2.2. Wide-angle camera

| imaging sensor	8 million pixels
Maximum photo size	1920*1080 (16:9)
Video resolution	1920×1080@30fps
coded format	H.264、H.265
effective focal length	3.01mm
equivalent focal length	20.39mm
iris diaphragm	F1.75
field perspective	DFOV135.6° HFOV113° VFOV60°

2.3. infrared camera

thermal imaging sensor	Non-cooling vanadium oxide infrared focal plane detector
Maximum photo size	384*288
Video resolution	384*288@25fps

coded format	H.264、H.265
pixel pitch	12μm
wavelength coverage	8-14μm
noise equivalent temperature difference	≤ 50 mk@25℃，f#1.0
effective focal length	7mm
iris diaphragm	F1.0
angle of field	25°*19°

2.4. Cloud Terrace

stabilization system	3 axes (pitch, roll, heading)		
range of rotation	cabrage	roll	azimuth
	+10°~-90°	±45°	±90°
stability accuracy	≤0.01°		
work pattern	Follow, Follow, Manual, One-Tap Center		

2.5. Structural shape diagram
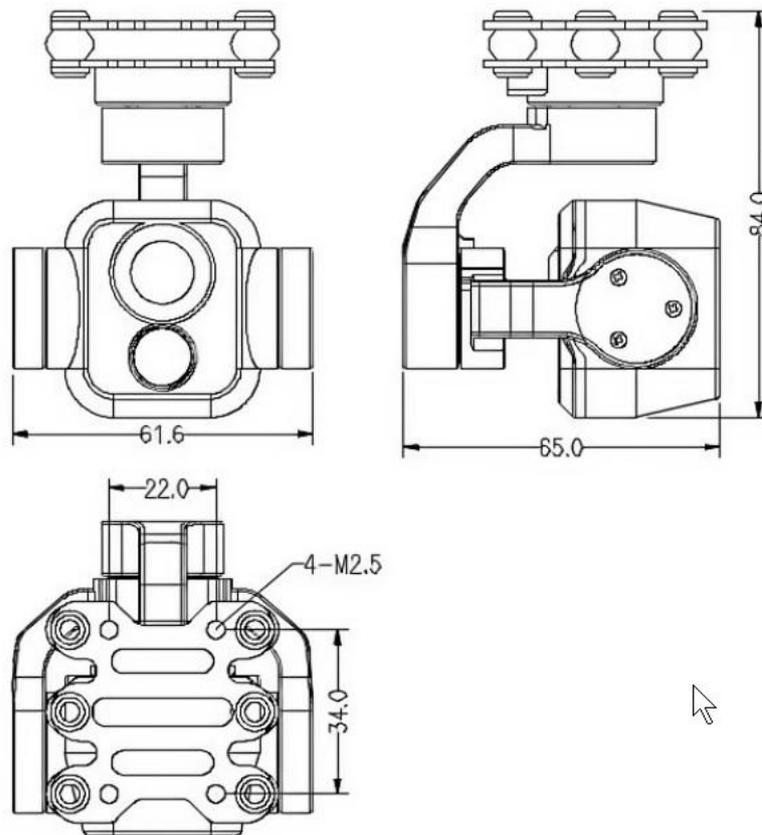
3. function Introduction

3.1. Display Mode

3.1.1. Single video display

It supports infrared and wide-angle camera single-channel video display, and can switch different camera video streams.

3.2. Photo and video recording

- Single shot: Take one photo after clicking the take button.
- Camera resolution: The wide-angle lens supports 1920*1080 resolution, and the infrared lens supports 384*288 resolution.
- Video recording resolution: Supports 1920*1080@30fps in visible light and 384*288@25fps in infrared.

3.3. infrared camera

3.3.1. Pseudo Color Mode

- Supports switching between different pseudo-color modes.

3.4. Other features

3.4.1. memory card

- Supports microSD cards up to 128GB, compatible with FAT32 and ExFAT file systems.

3.4.2. watermark

- Supports custom watermarks to display load model, SN code, latitude, longitude, altitude, date, and time

3.4.3. additional function

- Reset camera parameters: Restore camera settings to factory defaults with one click
- Auto-save camera settings: Save user-defined settings by default. The camera will automatically use the last saved settings when you reopen it.

  OSD customization: Supports OSD customization

3.5. Pan-Tilt Function

3.5.1. pan-tilt control

- One-click return: Quickly resets the gimbal to its original center position, aligning with the camera's orientation.
- One-click downward: Quickly rotates the gimbal vertically downward.

3.5.2. pan-tilt control mode

- Follow: The pod's orientation remains constant relative to the nose.
- Lock: The pod's orientation remains fixed and does not rotate with the aircraft's nose.
- Panning: The gimbal rotates around each axis by small angles through commands sent from the host computer.
- Manual: Control the pan-tilt rotation with up, down, left, or right commands.
- Speed control: The pan-tilt unit automatically adjusts rotation speed according to zoom ratio.

3.5.3. automatic drift correction

- The PTZ automatically calibrates drift during operation, correcting attitude deviations caused by hardware errors, environmental interference, or prolonged use. This ensures stable and precise posture control, thereby enhancing both the image quality and operational reliability of filming or surveillance.

4. Photoelectric Pod Operation Instructions

4.1. Signal line description

4.1.1. Signal line pin definition

order number	definition	explain	Wiring harness color	remarks
1	VBAT	12V-36V	red	
2	VBAT	12V-36V	red	

3	GND	earth wire	black	
4	GND	earth wire	black	
5	LAN-RXP	100M ethernet	Huang	
6	LAN-RXN	100M ethernet	Lan	
7	LAN-TXP	100M ethernet	palm	
8	LAN-TXN	100M ethernet	Lan	
9	GND	earth wire	black	
10	FLY-RXD	TTL gorge line	hispid arthraxon	Input/3.3V
11	FLY-TXD	TTL gorge line	Huang	output /3.3V

5. external communication protocol

You can contact sales or after-sales for relevant information.

6. Host machine tool

You can contact sales or after-sales for relevant information.

7. matters need attention

7.1. maintenance overhaul

7.1.1. Daily Use and Cleaning

● Dust and dirt protection

Avoid contaminating the lens with chemicals or oil during use. Clean the lens surface immediately after use with a lens cloth.

Direct wiping of optical lenses with hands or rough fabrics is prohibited. It is recommended to use professional lens cleaning kits, dust-free cloths, or alcohol for cleaning.

● Moisture-proof and waterproof

Avoid prolonged use in rainy, snowy, or high-humidity environments. If exposed to damp conditions, wipe the surface with a dry soft cloth after operation and store in a dry environment.

Do not soak or rinse the device directly.

● collision and vibration protection

During transportation or storage, place the pod in the factory-provided explosion-proof box to keep it securely fixed and protect it from violent shaking or dropping.

Do not impact the lens with sharp or hard objects, as this may cause damage and affect its performance.

7.1.2. matters need attention

● Do not disassemble by yourself

Non-professionals must not disassemble the pod's core components (e.g., optical modules or circuit boards), as doing so may cause damage or void the warranty.

- exception handling

If the device exhibits abnormal overheating, unusual noises, or image distortion, stop using it immediately and contact after-sales technical support.

Do not force the device to start in a faulty state.

7.2. Usage Notes

7.2.1. Preparation before use

- Environmental inspection

Maintain the operating environment temperature within-20℃ to 55℃, and avoid areas with strong electromagnetic interference.

The use is prohibited during severe weather conditions such as rain, snow, and sandstorms.

- equipment inspection

Check the pod for damage, the lens for stains, and the gimbal for smooth rotation without noise.

Inspect the mechanical structure of the flywheel gimbal for looseness. If any abnormal response is detected, immediately deactivate and perform maintenance.

Check the electrical connections of the system.

Check the normality of the gimbal imaging and function.

7.2.2. Usage Notes

If there are any abnormal situations such as abnormal picture or abnormal control of the pan-tilt unit during the operation, the operation task should be stopped and returned to the ground for inspection.

7.2.3. Post-processing

After use, the system must be powered down before the pod can be removed from the aircraft.

After cleaning the lens, it was put back into the packaging box.