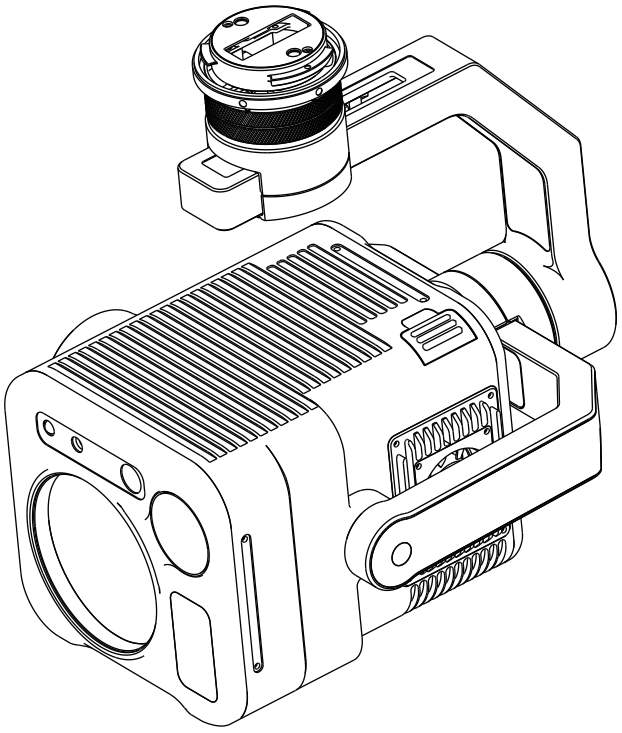
PURWAY-CH-4 UAV Laser Methane Leak DetectorIII

Quick Start Guide and Disclaimer

V1.2 202506



https://purway-innovate.com/

Disclaimer and Warning

Thank you for purchasing the Purway product PURWAY-CH-4 UAV Laser Methane Leak Detector III. Please read this document carefully before using the product to understand your legal rights, responsibilities and safety instructions; otherwise, it may cause property losses, safety accidents and personal safety hazards. Once you use this product, you will be deemed to have understood, recognized and accepted all the terms and contents of this statement. The user promises to be responsible for his or her own behavior and all consequences arising therefrom. The user promises to use this product only for legitimate purposes and agree to these terms and any relevant policies or guidelines that HEQ may formulate. The final right of interpretation of this document and all related documents belongs to Shenzhen Purway Innovation Technology Co., Ltd.

Subject to updates without further notice. Please visit the official website www.hequavtech.com for the latest product information.

Do Not Adjust The Gimbal Structure By Yourself

PURWAY-CH-4 UAV Laser Methane Leak Detector III has been debugged according to the camera and lens it carries before leaving the factory. Please do not adjust the gimbal or change its mechanical structure by yourself, and do not add other peripherals (such as filters, lens hoods) to the camera.

The gimbal structure is precise. Do not disassemble or assemble the PURWAY-CH-4 UAV Laser Methane Leak Detector by yourself, otherwise it will cause the gimbal device to work abnormally.

Be Sure To Install The Purway-CH-4 UAV Laser Methane Leak Detector III To The Specified Aircraft

PURWAY-CH-4 UAV Laser Methane Leak Detector III is currently compatible with DJI Matrice 300/350/400 aircraft, and other supported types will be updated in the future. Please cooperate with the inspection APP HEQ Captain to use the corresponding functions.

Safety in Use

Please ensure that your Laser Methane Leak Detector is used correctly and safely. Please read the user manual and watch the instructional video carefully to correctly install the Detector on the aircraft. Please carefully understand and comply with local laws and regulations before use. Once you use this product, it is deemed that you have carefully read the disclaimer and warnings, understood, recognized and accepted all the terms and contents of this statement. You promise to take full responsibility for the use of this product and the possible consequences. You promise to use this product only for legitimate purposes and agree to these terms and any relevant regulations, policies and guidelines formulated by Purway. Purway is not responsible for any damage, injury or any legal liability caused directly or indirectly by the use of this product. Users should follow all safety guide- lines including but not limited to those mentioned in this article.

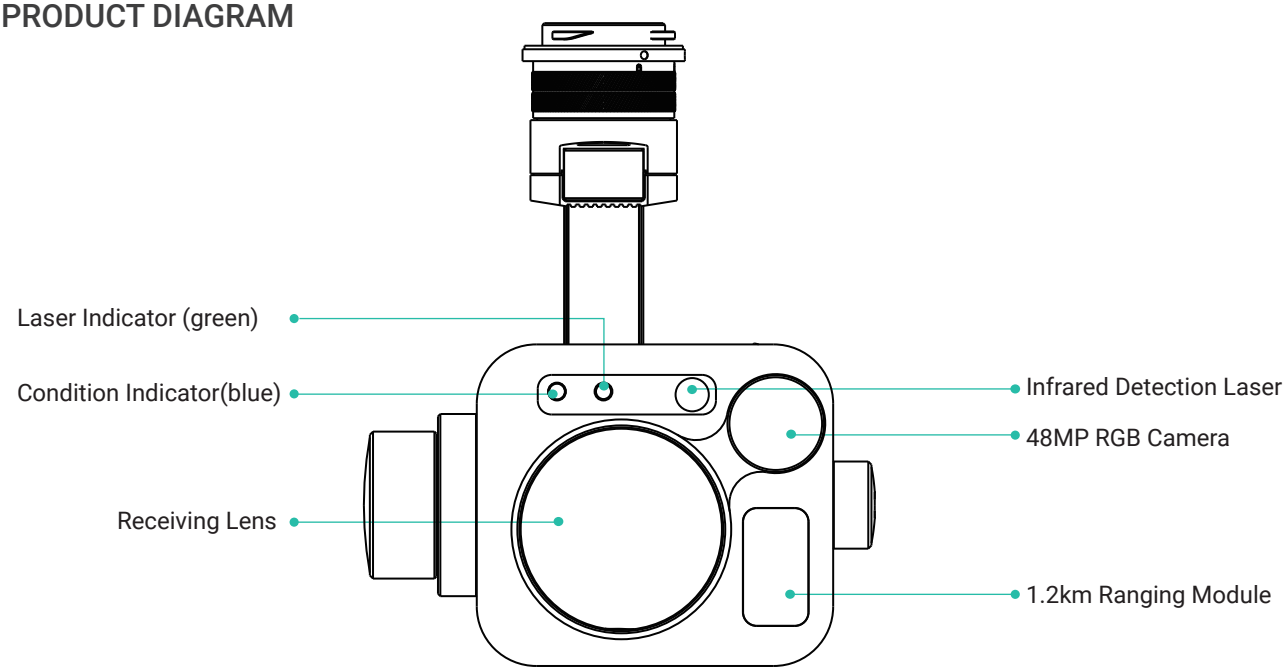
PURWAY-CH-4 UAV Laser Methane Leak Detector III

PRODUCT INTRODUCTION

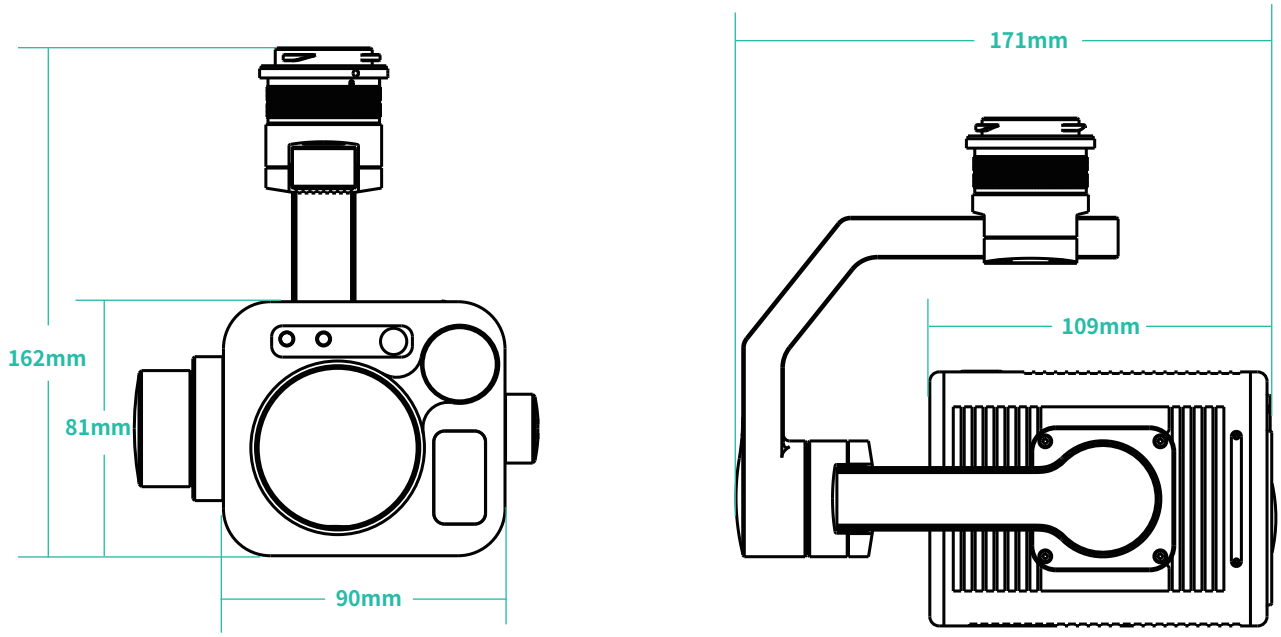
PURWAY-CH-4 UAV Laser Methane Leak Detector III is a compact and lightweight drone payload with high sensitivity, long-distance remote sensing capabilities and fast response. It uses laser absorption spectroscopy technology to quickly detect trace methane gas in the air, with a maximum detection distance of up to 300 meters.

The device combines laser detection with visible light sensors and uses tuned diode laser absorption spectroscopy (TDLAS) technology to achieve real-time data analysis. At the same time, it is integrated with the drone system to keep the detection equipment away from potential leaks. It is a powerful tool for natural gas inspection operations, which helps to improve safety, improve operating efficiency and achieve accurate visual detection. With the help of gimbal intelligent stable control, laser ranging and other technologies, it can quickly provide users with key leak point information, help users seize the opportunity, and improve perception and operating efficiency to a new level.

PRODUCT DIAGRAM

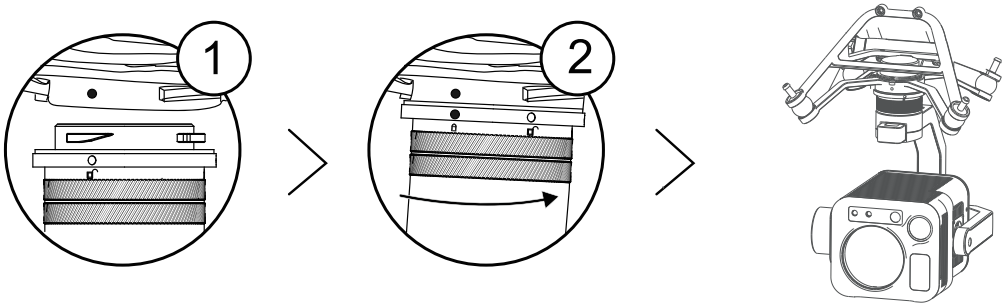


PRODUCT DIMENSIONS



Installation of PURWAY-CH-4 UAV Laser Methane Leak Detector III

Adjust the PURWAY-CH-4 UAV Laser Methane Leak Detector III gimbal interface to the unlocked position, insert it into the gimbal mounting position of DJI Matrice 300/350/400, and finally rotate the gimbal lock to the locked position to secure the gimbal.



Align the white dot on the Detector with the red dot on the interface and insert it into the installation position.

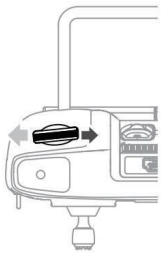
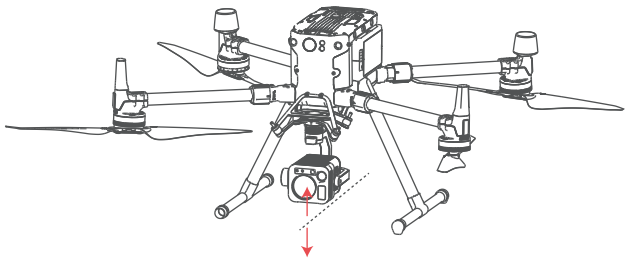
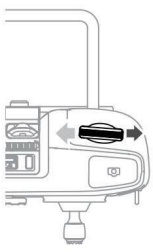
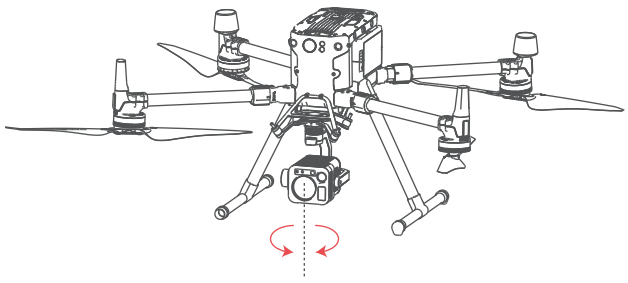
Rotate the Detector quick-release interface to align the red dot with the interface red dot to fix the Detector.

⚠ The gimbal interface is compactly designed. When installing or removing it, please fix the installation platform by hand and rotate it forcefully.

Gimbal Camera Function

The left dial can control the up and down angle of the gimbal; the right dial can adjust the pan angle of the camera.

The C1 button is used for forward return to center; the C2 button is used for downward return to center

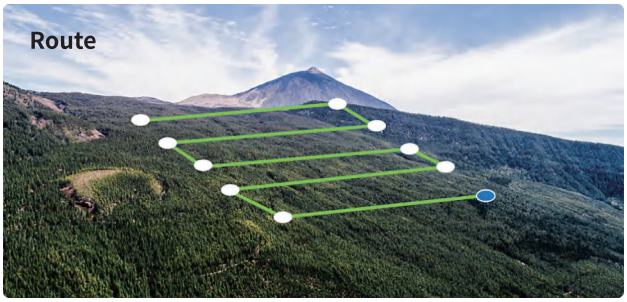
		The left dial is used to control the gimbal's pitch angle. Turn the dial clockwise to move the gimbal upward. Turn the dial counter-clockwise to move the gimbal downward.
		The right dial is used to control the pan angle of the gimbal. If you turn the dial clockwise, the gimbal will rotate clockwise. If you turn the dial counterclockwise, the gimbal will rotate counterclockwise.

Enter Captain APP

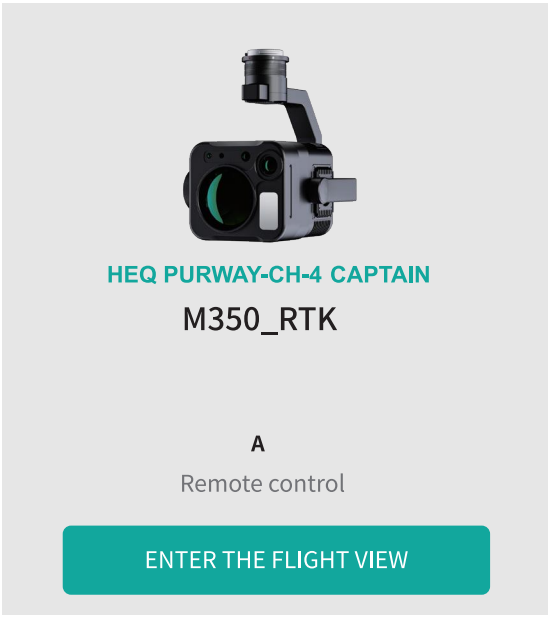
Install Captain APP on the DJI Matrice 300/350/400 remote controller, turn on the DJI Matrice 300/350/400 aircraft and remote controller, and after the DJI Matrice 300/350/400 aircraft and remote controller communicate, click "ENTER THE FLIGHT VIEW" to enter the APP.

Note: The first time you install the software, you need to connect to the Internet to register the SDK.

Log in DJI

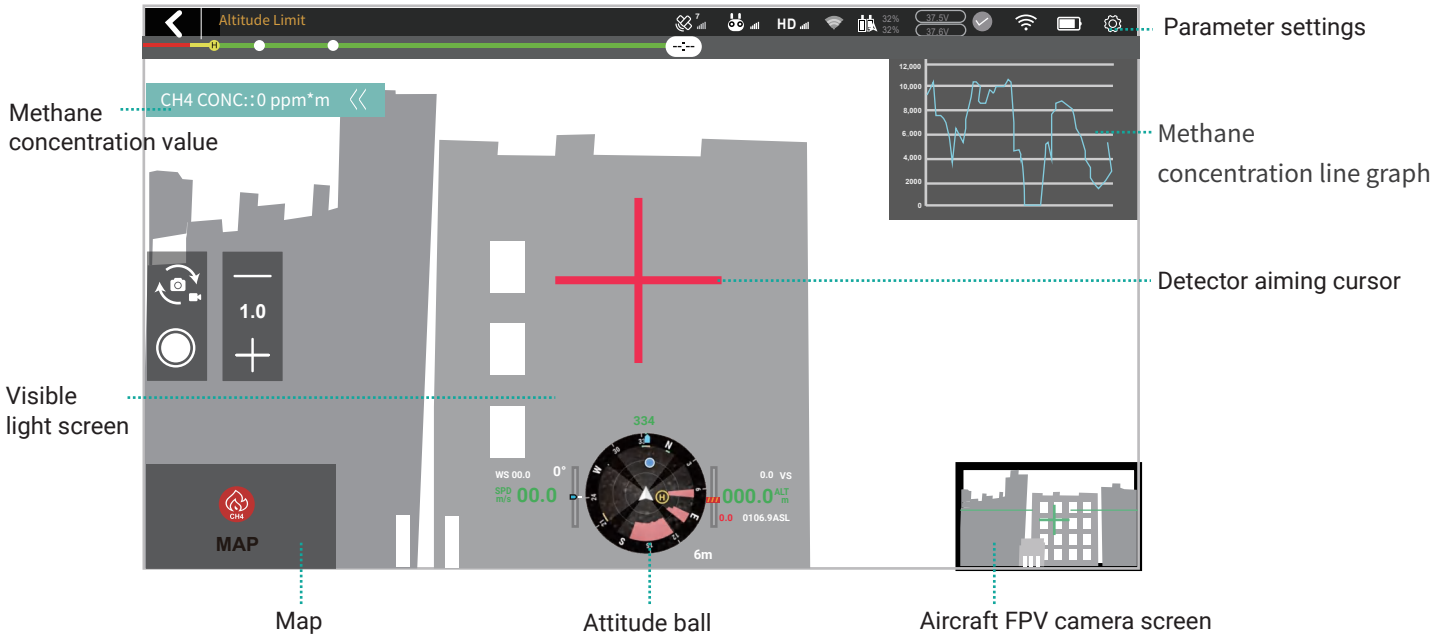




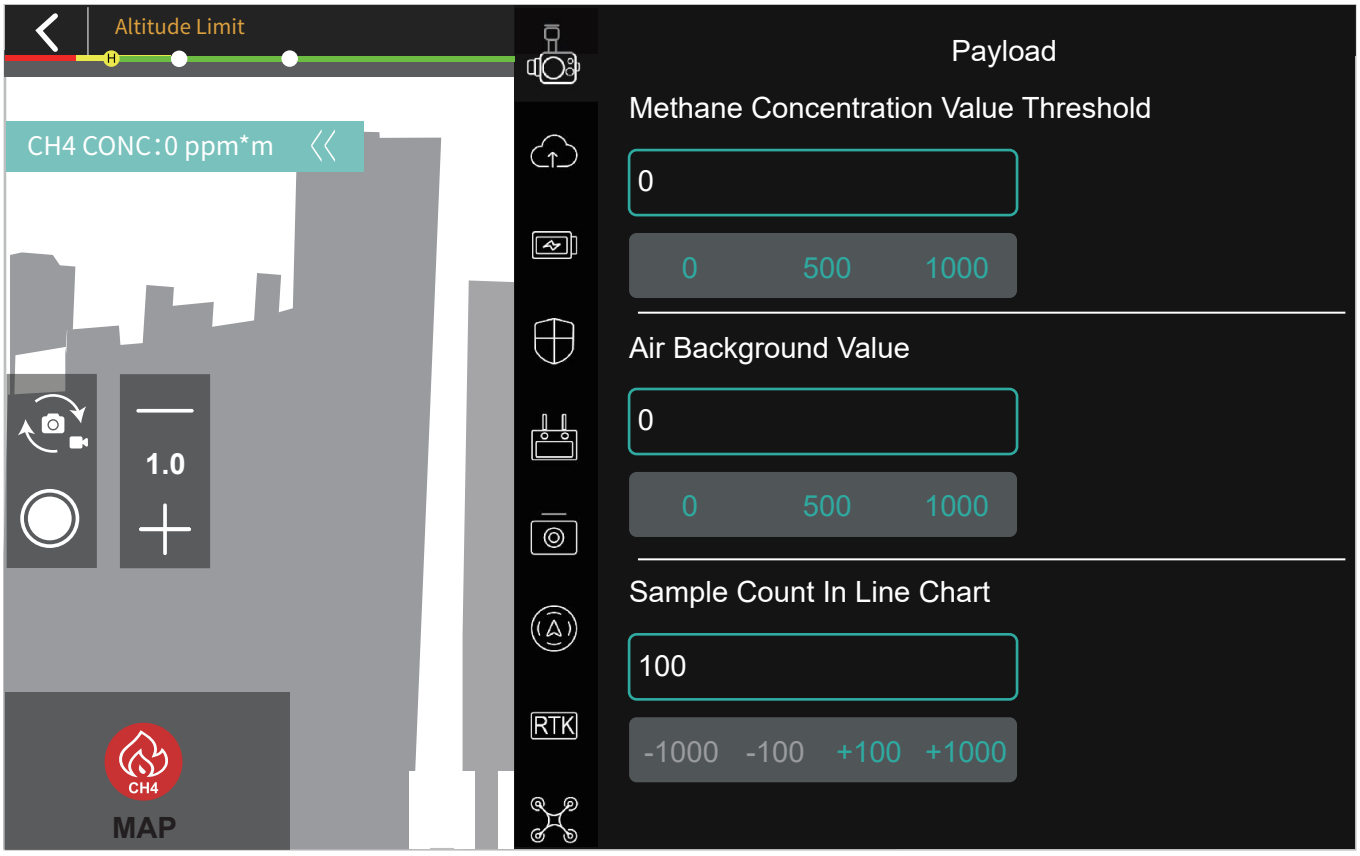


Captain APP Interface Description

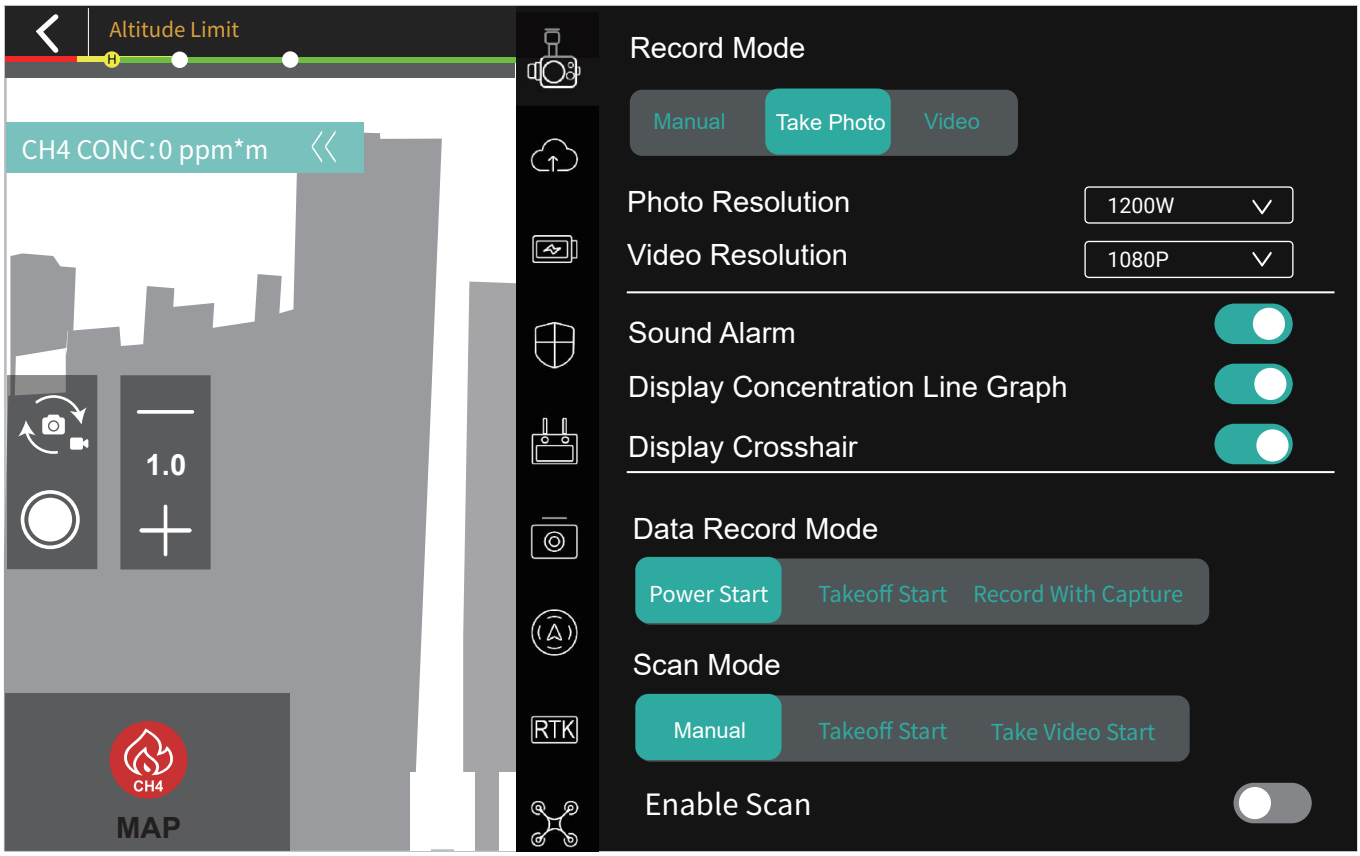
Parameters and information on the APP interface can be adjusted and closed through "Settings"



Payload Parameter Settings



Methane Concentration Value Threshold: If the threshold is exceeded, the software will give an alarm.
Air Background Value: Set the concentration value of methane molecules in the air without methane leakage



Record Mode

Manual: In manual mode, when methane is detected, it will not be automatically recorded, and you can take photos/records manually; after manual recording is turned on, if methane is detected during flight, the recorded video will have a methane concentration value watermark in the upper left corner.

Take Photo: In automatic photo mode, when methane is detected, it will be automatically recorded in the form of photos, and the photos will be stored in the file root directory.

Video: In automatic video recording mode, when methane is detected, it will be automatically recorded in the form of videos, and the videos will be stored in the file root directory.

Data Record Mode

Power Start:

1. The aircraft will automatically record when it is turned on (if there is no recording file, please check which recording mode is selected)

Takeoff Start

1. Manual takeoff will record a file
2. Takeoff on a flight route will record a file

Record With Capture:

1. Change the recording mode to manual, then press the photo button to record a file.
2. Add a photo waypoint action to the flight route, the recording mode needs to be changed to manual to trigger the waypoint action, and then when the route flies to the set waypoint action, the file will be recorded

Scan Mode

Manual scan:

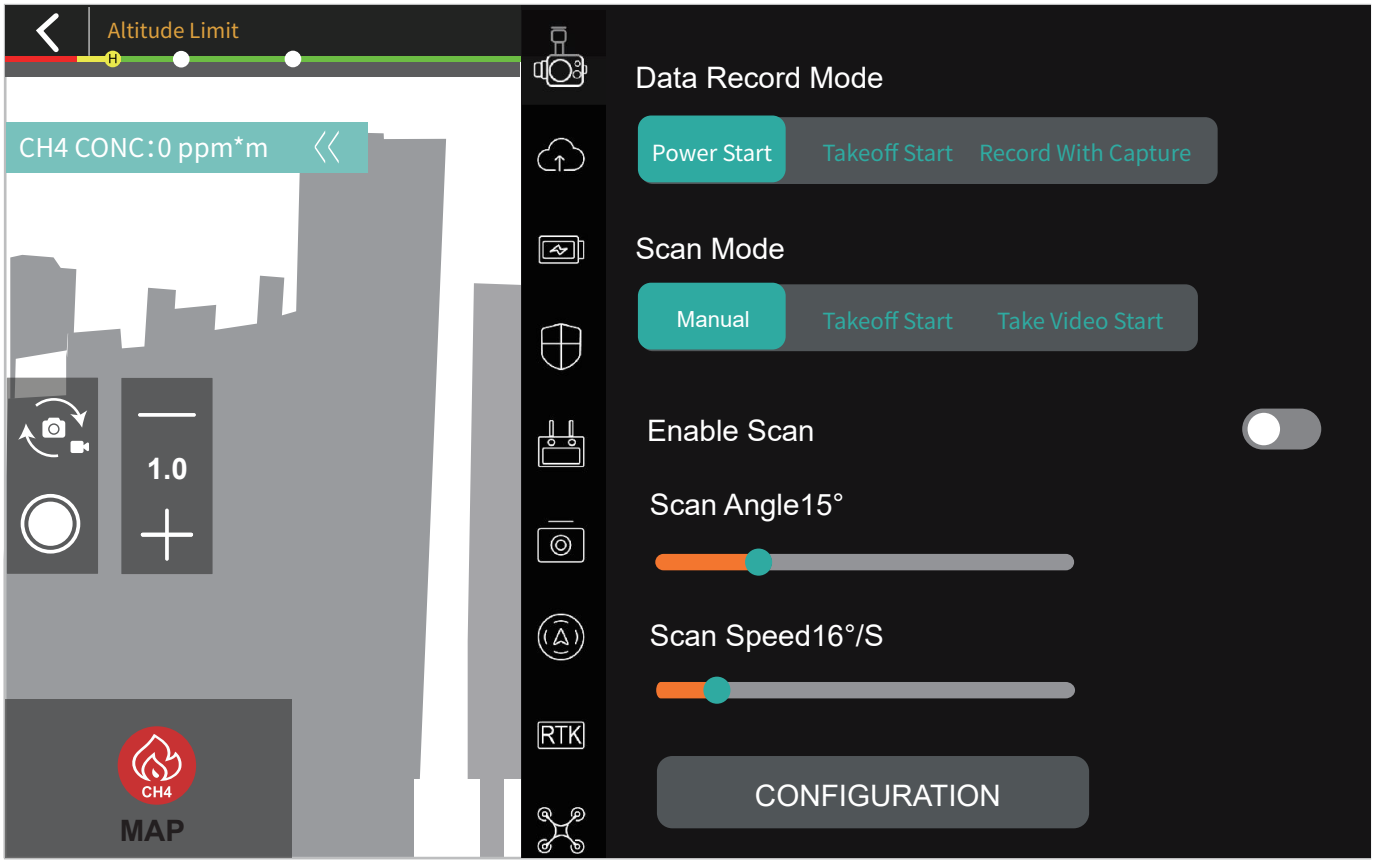
1. Click the scan button manually to start

Takeoff Start:

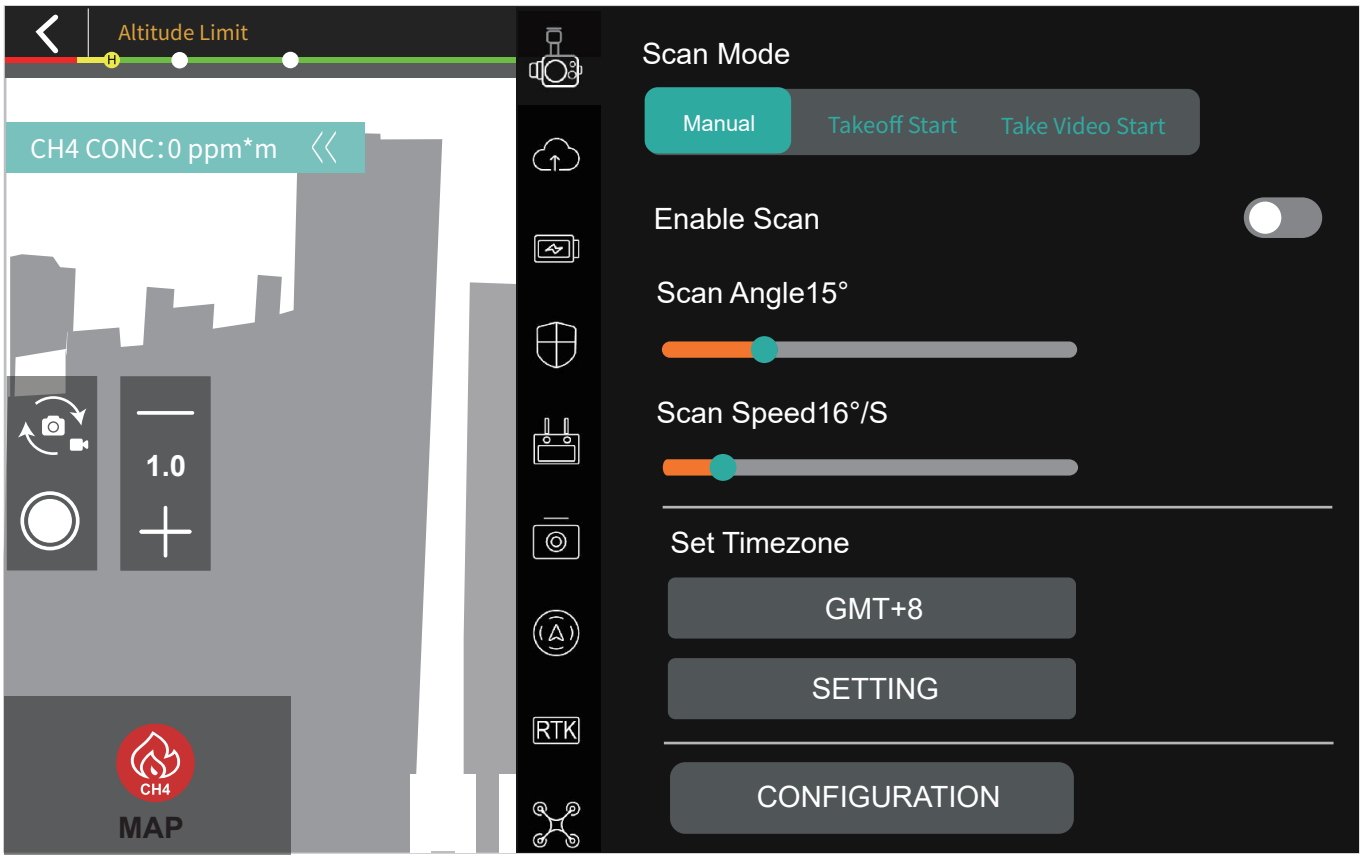
1. Manual takeoff to trigger the scan function
2. Takeoff on the flight route to trigger the scan function

Take Video Start:

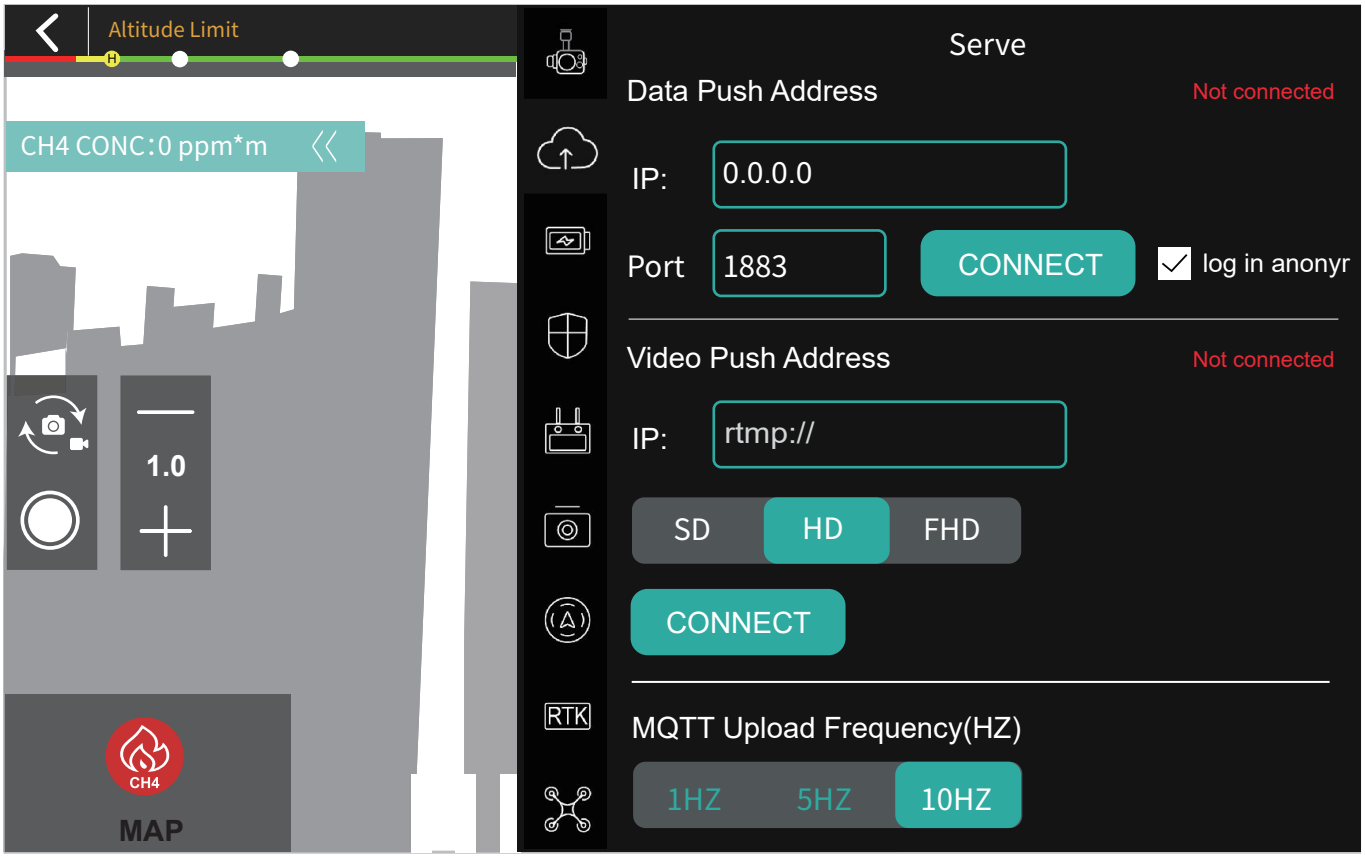
1. Change the recording mode to manual recording, then press the recording button to trigger the scan function
2. Add a video waypoint action to the flight route. The recording mode needs to be changed to manual to trigger the waypoint action. When the route flies to the set waypoint action, the scan function will be triggered.



Enter Configuration Mode: modify the device false alarm protection level and device response speed



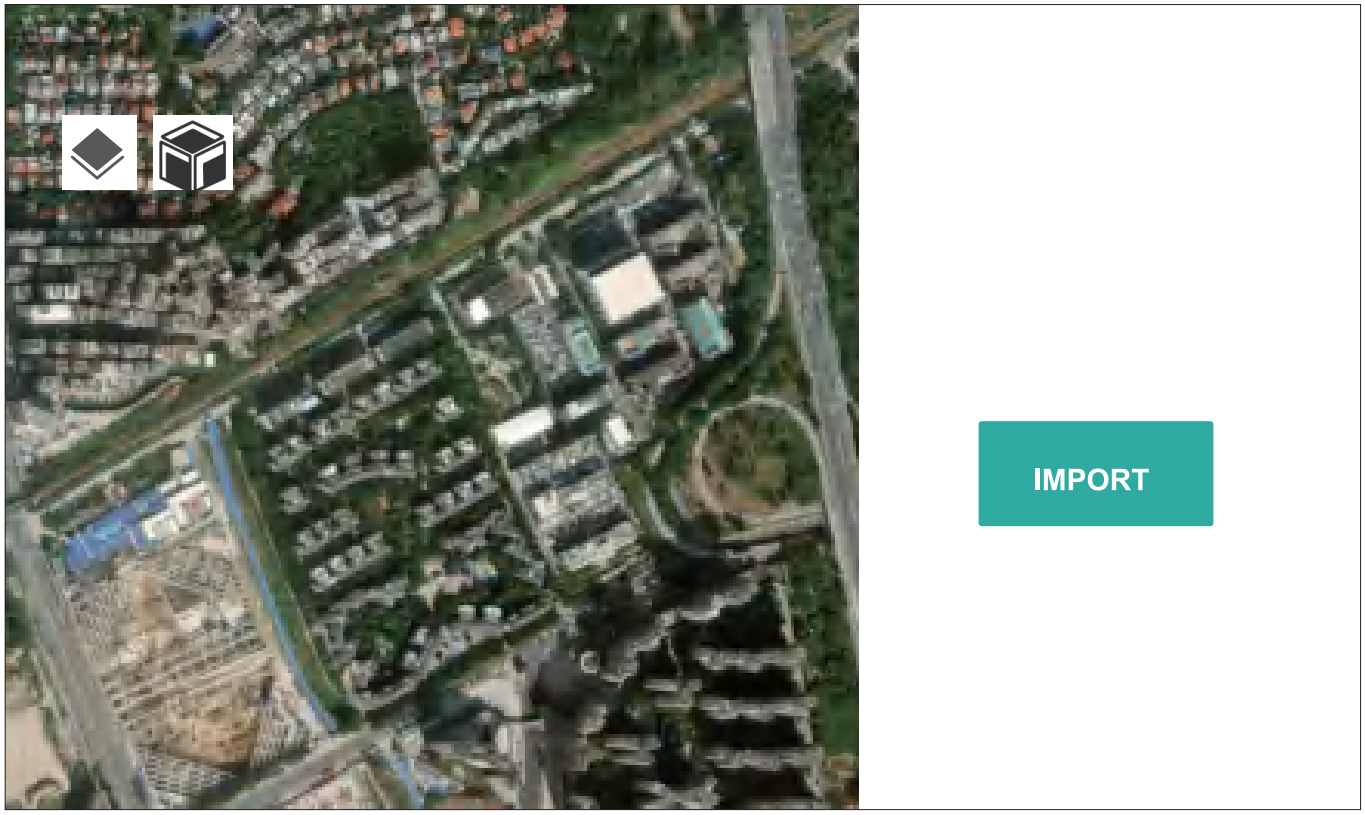
Time Zone Setting: set the corresponding time zone according to your country or region.



Cloud Service: Transmit data and video to the customer's own server via MQTT and RTMP protocols, allowing customers to expand more cloud functions.

Captain Information Analysis

The inspection data is stored in the SD card of the device camera. Remove the silicone cover on the back of the device to remove the SD card; use the reader to directly insert the remote control / move the record file of the SD card to the local remote control; open the homepage of the Captain APP and enter to export report.





Users can choose whether to export the report in full or in a streamlined form.

Laser Methane Telemeter Data Report

Generation Time:2025/06/27 17:06:16

Warning:1
Duration:00:05:19
Voyage:1.967KM

Start Time:
2025/06/27 18:51:44

Stop Time:
2025/06/27 18:57:03

Staff:
HEQ
Address:
1970

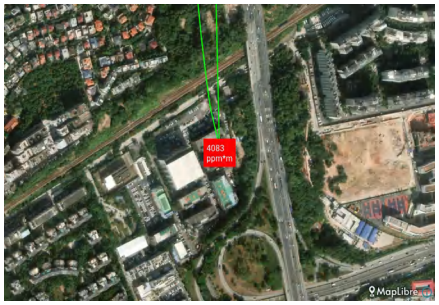


Index: 1
4083 ppm*m

latitude:
22.6227053

longitude:
114.0423213

Time:
2025/06/27 18:51:44



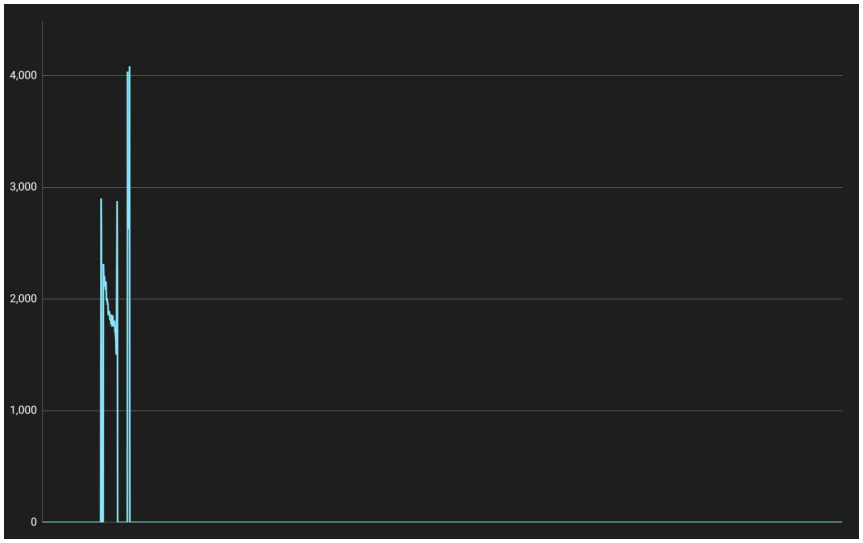


Laser Methane Telemeter Data Report

1、Inspection Overview

Address	1970				
Staff	John		Generation Time	2025/06/27 17:05	
Warning	3153	Duration	00:05:19	Voyage	1967.0m

2、Concentration Curve



3、Track Map



4、Concentration Table

Num	Time	longitude	latitude	Concentration	Luminous	Photo
1	2025-06-27_18:51:44	114.0423213	22.6227053	0	14355	
2	2025-06-27_18:51:45	114.042274	22.6227702	0	14306	
3	2025-06-27_18:51:45	114.042274	22.62277	0	14332	
4	2025-06-27_18:51:45	114.042274	22.62277	0	14327	
5	2025-06-27_18:51:45	114.042274	22.62277	0	14273	
6	2025-06-27_18:51:45	114.042274	22.62277	0	14274	
7	2025-06-27_18:51:45	114.042274	22.6227701	0	14296	
8	2025-06-27_18:51:45	114.042274	22.62277	0	14235	
9	2025-06-27_18:51:45	114.042274	22.6227701	0	14262	
10	2025-06-27_18:51:45	114.042274	22.62277	0	14213	
11	2025-06-27_18:51:45	114.042274	22.6227701	0	14219	
12	2025-06-27_18:51:46	114.042274	22.6227701	0	14203	
13	2025-06-27_18:51:46	114.042274	22.6227699	0	14238	
14	2025-06-27_18:51:46	114.042274	22.6227699	0	14274	
15	2025-06-27_18:51:46	114.042274	22.6227699	0	14256	
16	2025-06-27_18:51:46	114.042274	22.6227699	0	14233	
17	2025-06-27_18:51:46	114.042274	22.6227699	0	14218	
18	2025-06-27_18:51:46	114.042274	22.6227699	0	14160	
19	2025-06-27_18:51:46	114.042274	22.6227699	0	14111	
20	2025-06-27_18:51:46	114.042274	22.6227699	0	14098	
21	2025-06-27_18:51:46	114.042274	22.62277	0	14077	
22	2025-06-27_18:51:47	114.042274	22.62277	0	14102	
23	2025-06-27_18:51:47	114.042274	22.62277	0	14089	
24	2025-06-27_18:51:47	114.042274	22.62277	0	14019	
25	2025-06-	114.042274	22.62277	0	14008	

PARAMETER LIST

Detection Target	Methane and methane-containing gas
Instrument Weight	≤770g
Gimbal Stabilization	YAW+PITCH+ROLL
Protection Level	IP44
Camera Parameters	48MP 16x Digital Zoom
Photo/Video Recording	48MP resolution / 4K 30FPS
Real-time Image	1080P 30FPS
Operating Temperature	-20°C to 50°C
Sensitivity	5ppm*m
Gimbal Rotation Range	Pitch: +30° to -90°; Yaw: 135°to -135°
Detection Concentration Range	0-99999 ppm*m
Captain Software Functions	KMZ import, tif terrain following, task report output
Supported Drone Models	Support DJI Matrice 300/350/400 aircraft
Rangefinder Distance	1.2KM
Measurement Accuracy	±10% (100~50000 ppm*m)
Laser Safety Level	Class3R, avoid direct laser eye exposure
Response Speed	5ms, 10ms, 100ms (configurable)
Infrared Detection Wavelength	1.65μm, <25 mW
Infrared Detection Distance	≥300m
Beam Size	Infrared light divergence angle:3 mrad (6 cm at 20 m)