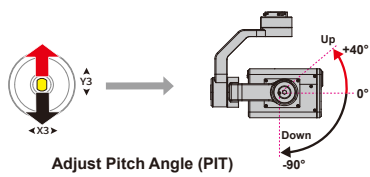
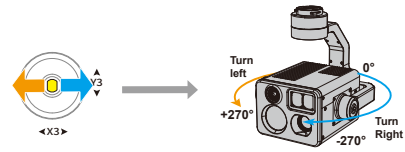
13.2 Adjustment of pitch angle and Yaw angle

Dial the remote control small stick X_3, Y_3 to up or down to adjust the gimbal pitch angle; Dial the remote control small stick X_3, Y_3 to right or left to adjust the gimbal yaw angle.



Adjust Pitch Angle (PIT)



Adjust Yaw Angle (YAW)

Tips:

The radiance of the small stick (X_3,Y_3) pluck determines the speed of the gimbal rotation: the greater the irradiance of the pluck, the faster the gimbal rotation speed; The smaller the radiance of the dial, the slower the rotation speed of the gimbal; Back to the midpoint, the gimbal rotation speed is 0.

14.0 Camera Function Description

Note: The camera control needs to be operated in the camera window of the remote control APP interface, and the touch screen can be used only when the image transmitted by the aircraft camera is displayed in the APP camera window.

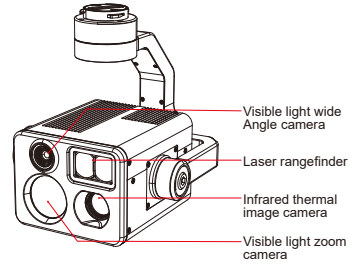
14.1 Camera window display mode Settings

Click on the icon to expand the display mode options.

Click the icon to display only the visible light camera screen;

Click on the icon to display only the infrared thermal imaging camera screen;

Click on the icon to display both infrared thermal imaging camera and visible light camera screen.



14.2 Set the camera working mode

Click the camera Mode Toggle icon to switch to take photos or video.

14.3 Set the camera focus point

Click the icon to expand the camera focus mode options.

Click the icon to set the center point to focus, the camera will focus on the center point of the frame, click the or icon to adjust the focusing distance;

Click the icon to set it to point and focus, and click anywhere in the camera window to select the focus point, and the camera will focus on the selected focus point.

14.4 Visible zoom camera zoom adjustment

Field of view (Zoom in): click the icon T to enlarge the picture (zoom up to 200 times, 1~20 times for optical zoom, 40~200 times for digital zoom);

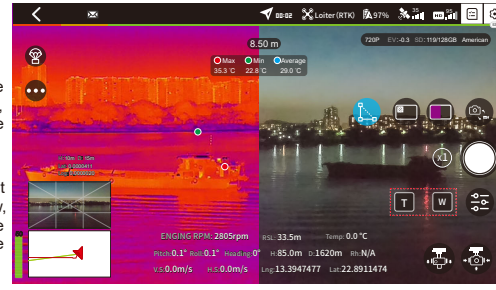
Wide Angle (zoom out): Click the icon W to zoom out.

14.5 Take photos/videos

Click the photo icon to take a photo.

Click the recording icon to start recording, and then click the recording icon again to stop recording and save the recording to the camera microSD card.

14.6 Temperature measurement function



First, click the icon to expand the temperature measurement mode options icon.

Picture-in-picture temperature measurement:
Click the icon , and the camera will measure the temperature in the entire infrared thermal imaging camera view window, showing the highest temperature, lowest temperature, and average temperature;

Area temperature measurement:
Click the icon , and then select the temperature measurement area anywhere in the infrared thermal imaging camera window, and the camera will measure the temperature in the frame selection area to display the highest temperature, lowest temperature and average temperature.

Point temperature measurement:
Click the icon , and then click to select the temperature measurement point anywhere in the infrared thermal imaging camera view window, and the camera will measure the temperature of the currently selected temperature measurement point.

14.7 Ranging function

First, click the icon to expand the camera focus mode option and the observation target selection switch; Then light up the icon to turn on the observation target selection function, and select the observation target anywhere in the visible light zoom camera window, and the camera's laser rangefinder will measure the distance from the currently selected observation target to the aircraft.

15.0 Additional instructions

15.1 Rotable LIDAR ranging and obstacle avoidance system

The direction of detection of the light pulse emitted by the Rotable LIDAR will change with the change of the heading, and it is always detected in the heading direction of the aircraft; objects in the hemispheric airspace with a radius of 45 meters around the aircraft can be detected.

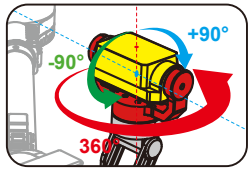


Fig.15.1-1

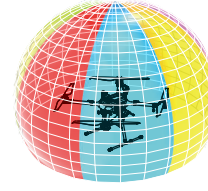


Fig.15.1-2

Note: The automatic obstacle avoidance function is only available in Loiter mode(GPS mode).

Turn on automatic obstacle avoidance operation

First turn the three-position switch on the left of the remote controller to the midpoint (Loiter mode) position, then click the icon " " in the upper right corner of the Manual Mode interface of the DMRGCS APP to expand the settings → turn on the icon " " to expand the flight safety settings menu → scroll down to find “Obstacle Avoidance Enable” , click the switch icon " " on the right to switch to the on state " " ; → click " " or " " under “Obstacle Avoidance Distance” to adjust the automatic obstacle avoidance trigger distance (adjustable range is 3 ~ 20m) → Click the icon " " on the right of the “Avoidance distance” to save the automatic obstacle avoidance trigger distance.

The camera window of the app interface will display the distance and orientation of the obstacle to the aircraft.

1) The obstacle reminder window divides the airspace around the aircraft into eight airspaces: front, front right, front left, left, right, rear left, rear right, and rear, as shown in Figure 15.1-3.

2) The obstacle reminder window displays the distance and azimuth between the aircraft and the obstacle closest to the aircraft on the current flight heading. (Figure 15.1-4)

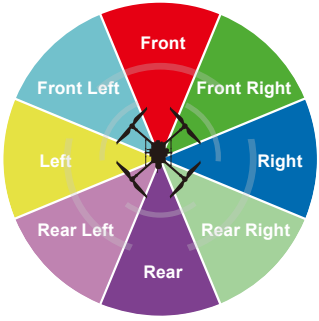


Fig.15.1-3

Fig.15.1-4

15.2 Compass calibration

⚠NOTES

1) If there is a circle when hovering, or if there is a deviation from the course when flying in a straight line, please land in time to calibrate the compass.

2) Please perform calibration in an open place outdoors and away from strong electromagnetic field interference.(The motors must be locked when do calibration)

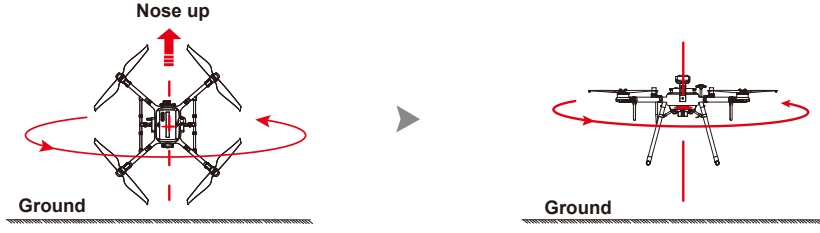
3) It is recommended to remove the camera gimba before calibration, and then put them back on after calibration.

Enter compass calibration:

Method1: When the aircraft and the remote controller are connected, click the icon ⚙ in the upper right corner of the flight interface of the DMRGCS APP to expand the setting pop-up window → light up the icon (•) to expand the sensor setting menu → click " Calibrate Compass " on the right side of " Compass " → and thenclick the " Calibration ",the aircraft status indicator flashes quickly to indicate that it has entered the compass calibration state;

Method2: Directly hold the nose of the aircraft vertically upwards for more than 6 seconds when the motor is locked, and the aircraft status indicator flashes quickly to indicate that it has entered the compass calibration state.

The compass calibration method is as follows:



1) Hold the aircraft nose vertically upward for more than 6 seconds, the aircraft indicator will flash rapidly, and then rotate the aircraft 720° in the horizontal direction, the aircraft indicator will turn off.

2) Lay the aircraft flat, then rotate the aircraft 720 degrees horizontally, the aircraft indicator will light up, then place the aircraft still in a horizontal position.

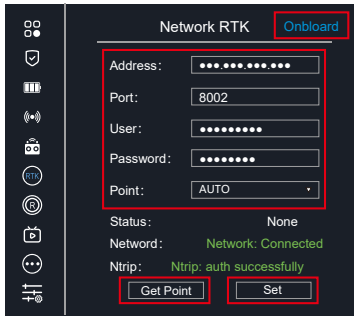
If the calibration is unsuccessful, please re-calibrate according to the above method.

15.3 Network RTK Settings

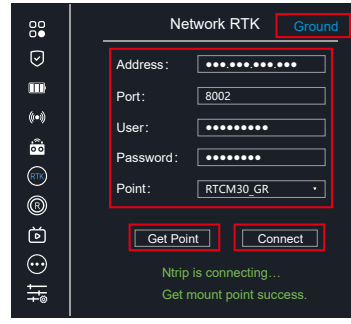
Notice:
Purchase a network RTK service account from a local network RTK operator efore setting up.

1) Onboard Network RTK Setings (the factory default setting of network RTK mode is airborne mode):

The aircraft is equipped with a valid mobile data card, click the icon " " in the upper right corner of the DMRGCS APP Manual Mode interface or Airway Mode interface to expand the setting pop-up window → light the icon " " to expand the RTK setting menu, and check the network RTK title on the right RTK mode Whether it has been set to " Onbord ", if it is displayed as " Ground ", please click " Ground " to switch it to " Onboard " → Then enter the server address, port (input 8001 or 8002), user name, password → then click " Get Point " to get the mount point → Click " Set " after the mount point is obtained successfully.



Onbloard network RTK Settings



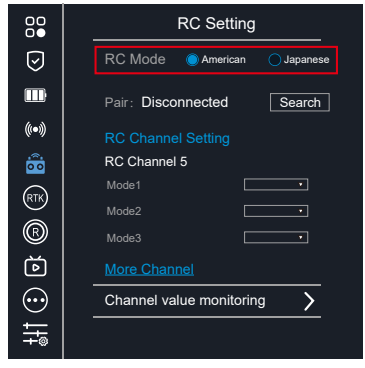
Ground network RTK Settings

2) Ground Network RTK Setings:

When the remote controller is connected to the Internet, click the icon " " in the upper right corner of the manual flight interface or Airway Mode interface of the DMRGCS APP to expand the setting pop-up window → light the icon " " to expand the RTK setting menu, and check whether the RTK mode on the right side of the RTK title has been set to " Ground " , if the display is " Onboard ", please click " Onboard " to switch it to " Ground " → Check to make sure that the user name and password are correct → Then click Get Mount Click → Click " Connect " to connect the etwork RTK service after the mount point is obtained successfully.

15.4 Remote control joystick mode switch

First click the icon in the upper right corner of tthe flight interface of the DMRGCS APP to expand the setting pop-up window → then light up the icon to expand the remote control setting menu → light up the icon in front of the remote control mode option " American Hand " or " Japanese Hand " → Click " OK " in the pop-up window for confirming the change of Stick Mode → Click " Ok " in the pop-up window for the successful setting.



16.0 Instructions for safe use of battery

Notes:

1) Do not disconnect the aircraft battery after the engine is started.

2) Improper use, charging, or storage of batteries may result in fire or property and personal injury.

3) Always use batteries in accordance with the following safety guidelines.

16.1 Battery Use

1)Do not allow the battery to come into contact with any liquid, and do not immerse the battery in water or get it wet. Do not use the battery in the rain or in a wet environment. Contact with water inside the battery may cause a decomposition reaction, which could result in spontaneous combustion or even an explosion.

2)It is strictly forbidden to use a battery that is not officially supplied by us. If you need to replace the battery, please go to our official website for purchasing information. We are not responsible for battery accidents or flight failures caused by the use of batteries that are not officially provided by us.

3)It is strictly forbidden to use batteries that are bulging, leaking, or in damaged packaging. If any of the above occurs, please contact us or our designated agent for further action.

4)The battery should be used at an ambient temperature within 0°C - 45°C. If the temperature is too high (above 50°C) the battery may catch fire or even explode; If the temperature is too low (below 0°C), the battery life may be severely damaged.

5)Do not use the battery in a strong electrostatic or magnetic field environment.

6)If the battery is accidentally dropped into water during the flight of the aircraft or under other circumstances, please immediately disconnect the battery wires and place it in a safe open area, and stay away from the battery until it is completely dry. The air-dried battery should not be used again and should be disposed of properly.

7)Do not short-circuit the battery, as short-circuiting the battery may damage the battery or objects it touches.

8)Do not hit the battery. Do not place heavy objects on the battery or charger.

9)Do not disassemble or modify the battery, or use it for other purposes.

10)Use the original charger to charge the battery according to the standard procedure.

11)Recharge the battery immediately after the aircraft automatically lands due to low battery.

12)Do not dispose of the battery in a fire, as it may explode.

13)Do not dispose of the battery as household waste. Dispose of the battery in accordance with local regulations.

Caution:

- **The life of the lithium battery is calculated by the number of cycles. The time from battery full charge to deep discharge (fully discharge the remaining power in the battery) is one cycle. The life of the lithium battery is about 200 cycles.**
- **Please use the battery scientifically and try to avoid over-charging, otherwise it will be counted in the battery life cycles. With the increase in the number of times of charging, the battery performance will gradually weaken, and the battery life is shortened.**
- **When the battery is fully charged but the flight time is significantly shortened, it is necessary to replace the battery.**

16.2 Battery storage

1)Keep the battery away from open flames or sources of ignition such as heaters.

2)Keep the battery out of the reach of children.

3)Please make sure that the battery is stored at room temperature: 25℃.

4)If the battery is not used for a long period of time, please keep the storage voltage between 45.6V~46.2V.

5)When not in use for a long time, the battery storage state should be checked for abnormalities every two weeks, and the charge and discharge activation should be carried out every two months to maintain the activity of the battery.

17.0 Common fault diagnosis methods

Fault Description	Reasons	Solutions
Unable to take off normally	1. Disconnect the battery	Check the battery connections and reconnect
	2. Low voltage of battery	Check voltage, recharge
	3. Battery is damaged	Replace power battery
	4. Incorrect installation of propeller	Check the direction of propeller rotation and reinstall correctly
Unstable flight attitude	1. Propellers are damaged	Replace propeller
	2. Motor collision or damage	Replace motor
	3. Poor Satellite positioning(GPS) signal	Observe the surrounding environment to confirm if there is any interference source, choose an open and interference free place to fly
	4. Satellite positioning(GPS) module is damaged	Replace Satellite positioning(GPS) module
	5. Sensors Calibration errors	Rrecalibration of sensors (such as gyroscopes, accelerometers, compasses, etc.)
	6. Sensors damaged (such as gyroscopes, accelerometers, compasses, etc.)	Replace sensors or replace main controller
Image not connected	1. Transmission signal continuity abnormality	Restart the remote control and aircraft power
	2. The camera&gimbal is not installed in place, and the contact between the power strips and plugs is poor	Take out the camera&gimbal and reattach it properly in place
The camera cannot capture clear images or videos	Camera or lens malfunction	Repair or replacement camera

18.0 FCC Statement

This device has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This device generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications.
However, there is no guarantee that interference will not occur in a particular installation. If this device does cause harmful interference to radio or television reception, which can be determined by turning the device off and on, the user is encouraged to try to correct the interference by one or more of the following measures:
--Reorient or relocate the receiving antenna.
--Increase the separation between the device and receiver.
--Connect the device into an outlet on a circuit different from that to which the receiver is connected.
--Consult the dealer or an experienced radio/TV technician for help

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment

FCC Radiation Exposure Statement
The antennas used for this transmitter must be installed to provide a separation distance of at least 20 cm from all persons and must not be co-located for operating in conjunction with any other antenna or transmitter.

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