

TAITEN User Manual



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1. Package contents

(1) Controller main unit $\times$ 1

(2) Antenna $\times$ 2

(3) Charger $\times$ 1

(4) USB-C to USB-C cable $\times$ 1

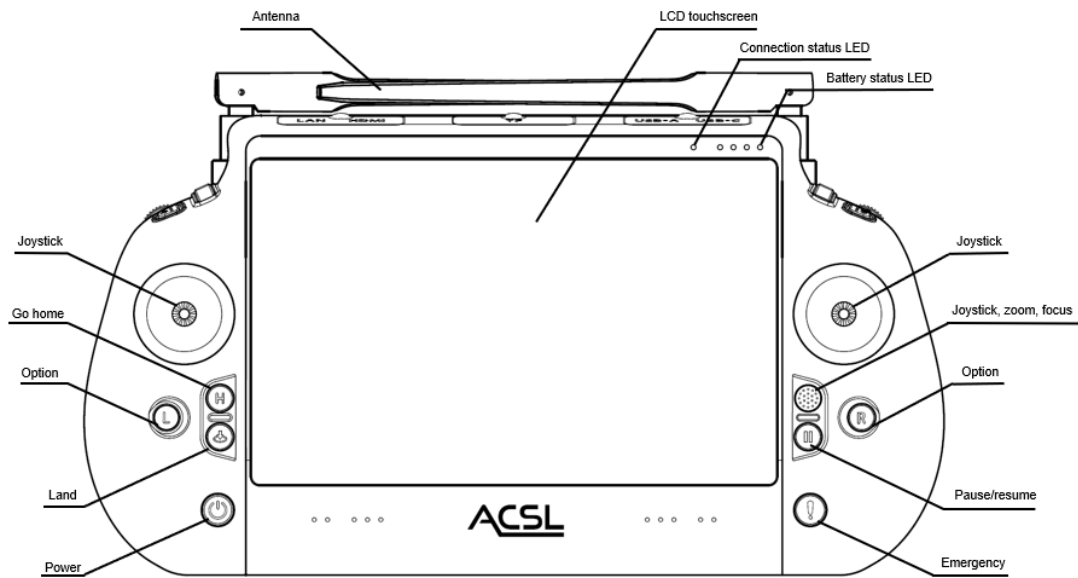
2. Performance specifications

Item		Specification
Dimensions	-	291*155*83mm
Weight	-	1450g
Display	Size	7 inches
	Resolution	1200 x 1920
Operation	-	2-axis control stick × 2 Camera gimbal wheel × 2 Mode 3 state button (AUT/POS/MAN) Video start/stop button Go to home Option button Land button Power button Obstacle avoidance 3 state Single shoot Joystick, Zoom, Focus Option button Pause/resume Emergency button
Indicators	-	Speaker Vibration motor Connection indication LED Battery level indicator LED
Sensor	-	Temperature sensor Microphone GNSS receiver
Battery	Type	Li-ion
	Capacity	13,200mAh
	Rated voltage	7.2V

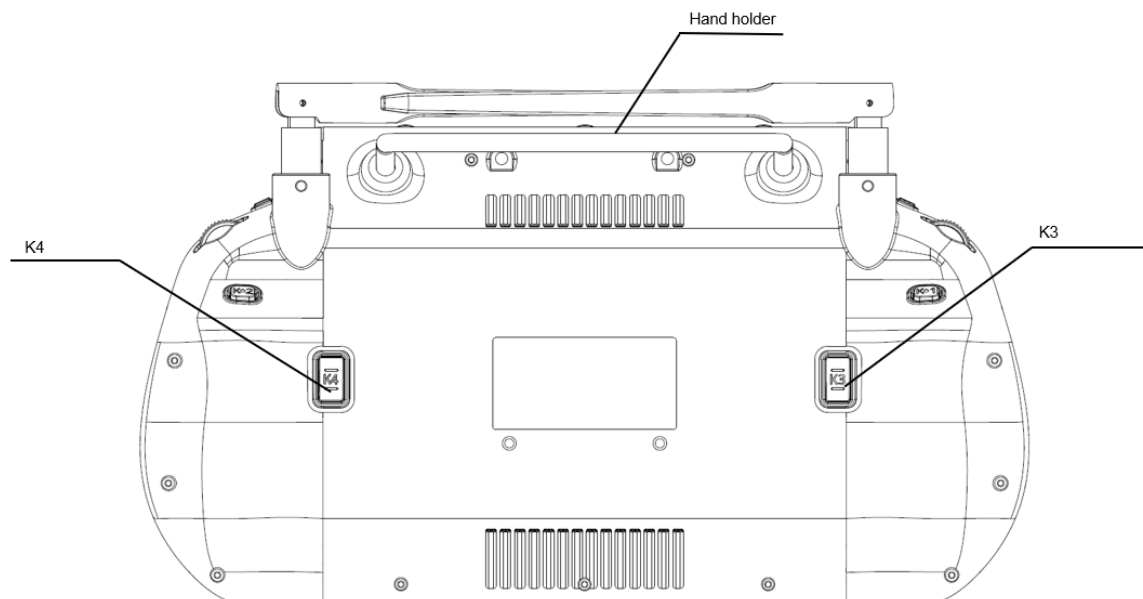
Working time	Typ.	8 hours
Charging time	-	3.5H by 60W charger
Communication radio	Frequency	2.4GHz + 5GHz bands
	Max. communication range	4km
Network radios	-	Wi-Fi, 2.4/5GHz Bluetooth 4.1 LE/4.2/5.0 LE
LTE	-	Not available
Communication protocol	-	MAVLink
OS	-	Android 13
Operation temperature range	-	-20°C to +60°C
Storage temperature range	-	-20°C to +50°C
Charging temperature	-	0°C to +45°C
IP protection rating	-	IP54
Interfaces	-	Ethernet HDMI TF USB-C USB-A 2.0
Included accessories	-	Charger and cable

3. Controller parts

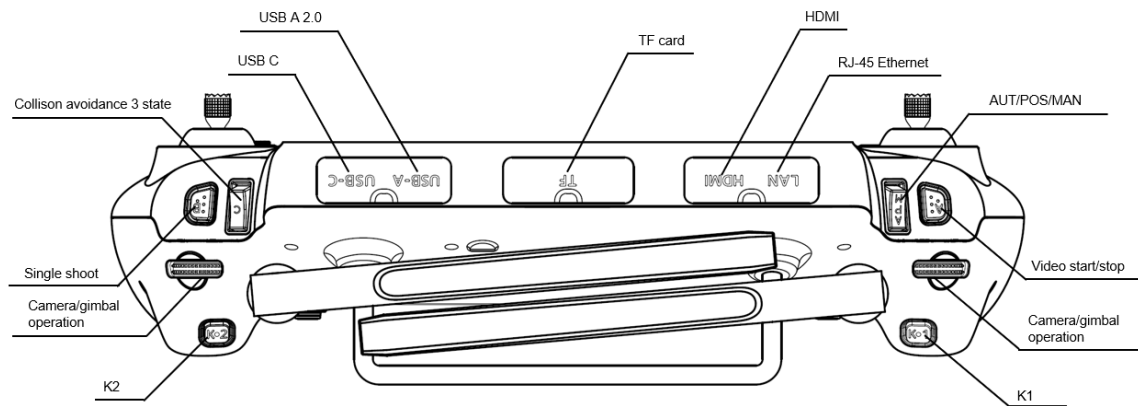
Front view



Back view



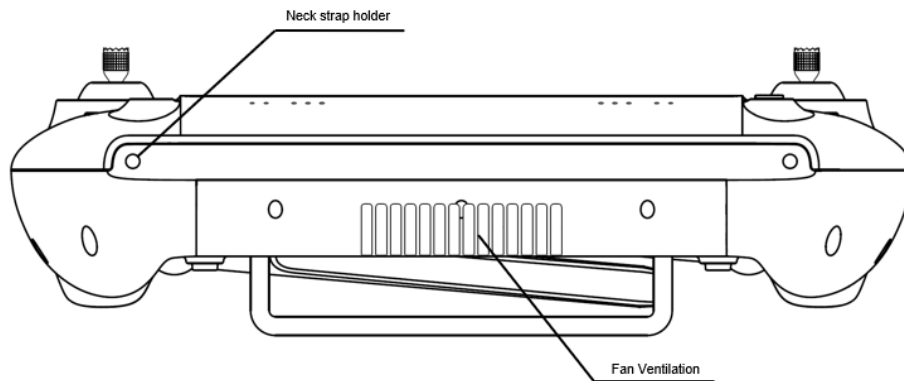
Top view



Name	Function	Positions	Remarks
J1	Longitudinal/Vertical attitude/position control	Continuous	Modes 1 & 3: longitudinal control Modes 2 & 4: vertical control
J2	Heading/Lateral attitude/position control	Continuous	Modes 1 & 2: heading control Modes 3 & 4: lateral control
J3	Vertical/Longitudinal attitude/position control	Continuous	Modes 1 & 3: vertical control Modes 2 & 4: longitudinal control
J4	Lateral/Heading attitude/position control	Continuous	Modes 1 & 2: lateral control Modes 3 & 4: heading control
H	Go home	2	Automatic return to and landing at the takeoff point
L	Option button	2	
LND	Automatic Land	2	Automatic landing at the current location
Z/F	Joystick, zoom, focus	5	
P/R	Pause/Resume	2	Push to pause autonomous flight; push again to resume
R	Option button	2	
EMG	Emergency button	2	
A/P/M	Switch flight modes	3	Forward: AUT (auto); Middle: POS (position); Back: MAN (manual)

C	Collision avoidance	3	Forward: ON; Middle: ON; Back: OFF
A	Video start/Stop	2	To start or stop the video
B	Single shoot	2	
W1	Camera/gimbal operation	Continuous	Gimbal up/down (tilt) operation
W2	Camera/gimbal operation	Continuous	Gimbal left/right (pan) operation
K1		2	
K2		2	
K3		2	
K4		2	

Bottom view

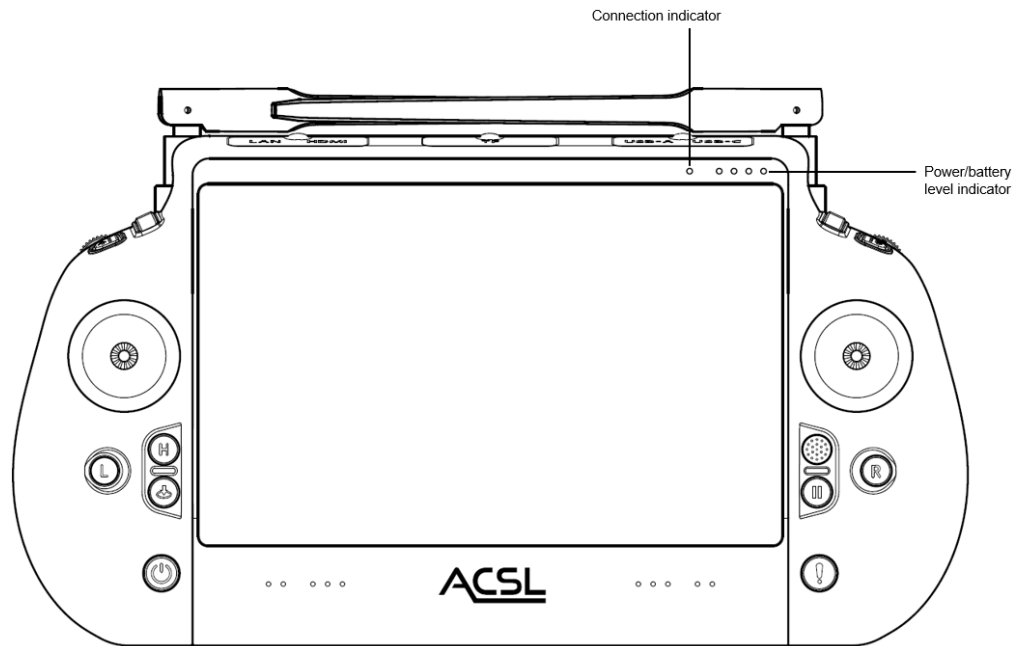


Name	Intended application
RJ-45 Ethernet	Connect to a wired ethernet network
HDMI	Display the screen on an external monitor
microSD card	Used to update firmware, transfer flight plans, retrieve logs, etc.
USB-A 2.0	Used to transfer flight plans, retrieve flight logs, etc.
USB-C	Charging, etc.

Note:

"The Adopted Trademarks HDMI, HDMI High-Definition Multimedia Interface, HDMI trade dress and the HDMI Logos are trademarks or registered trademarks of HDMI Licensing Administrator, Inc. in the United States and other countries." OR "The terms HDMI, HDMI High-Definition Multimedia Interface, HDMI trade dress and the HDMI Logos are trademarks or registered trademarks of HDMI Licensing Administrator, Inc."

4. Indicators



4.1. Power indicator

It will be blinking in green when it's charging. During charging, if the battery level is less than 25%, the first power indicator will be blinking. After it is more than 25%, the first power indicator will be solid on in green, and the second power indicator will be continually blinking. After it is more than 50%, the first and the second power indicators will be solid on in green, and the third power indicator will be continually blinking. After it is more than 75%, the first three power indicators will be solid on in green, the fourth power indicator will be continually blinking, all the four power indicators will be solid on when it's 100% charged.

4.2. Connection indicator LED

If TAITEN has no connection with SOTEN, the indicator will be solid on in red.

If TAITEN has a pilot connection with SOTEN, the indicator will be solid on in green.

If TAITEN has an observer connection with SOTEN, the indicator will be blinking in green.

4.3. Battery level indicator LED

Battery level indication				
●	○	○	○	0%—25%
●	●	○	○	25%—50%
●	●	●	○	50%—75%
●	●	●	●	75%—100%

●On ○Off

5. Charging

How to charge the battery

- (1) Connect the included USB-C to USB-C cable to the included charger.
- (2) Open the waterproof cover on TAITEN's upside and connect the charger cable to the USB-C port.
- (3) Plug the charger into an electrical outlet.

Additional note

- The charge stops automatically when the battery becomes full.
- During charging, the solid on charging LED shows the remaining battery level.
- When the controller is powered off, briefly push the power button to display the remaining battery level.

Warning

- Do not use controller or the battery charger when wet. Also, do not use the product with wet hands. Doing so may cause an electric shock.

6. Startup and shutdown

A single press and release then press and hold the power button for three seconds to turn on/off.

7. Pilot mode and observer mode

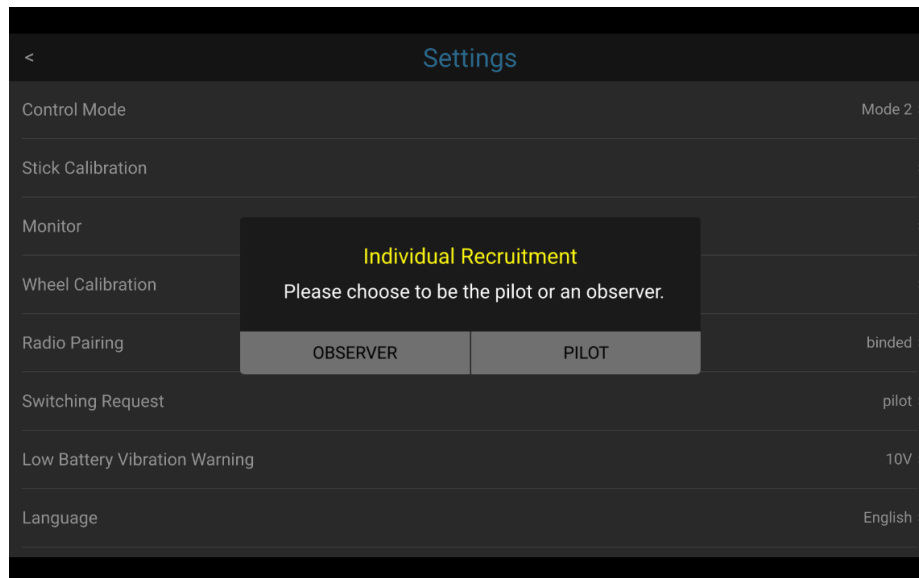
In pilot mode, both operation and monitoring are possible. In observer mode, only monitoring is possible, no commands can be sent to the aircraft.

When only one controller is bound to the aircraft, that controller will always be automatically granted pilot authority. When multiple controllers are bound to one aircraft, only one controller will be granted pilot authority, and the others will be relegated to observer mode.

Up to 3 controllers may be bound to a single aircraft.

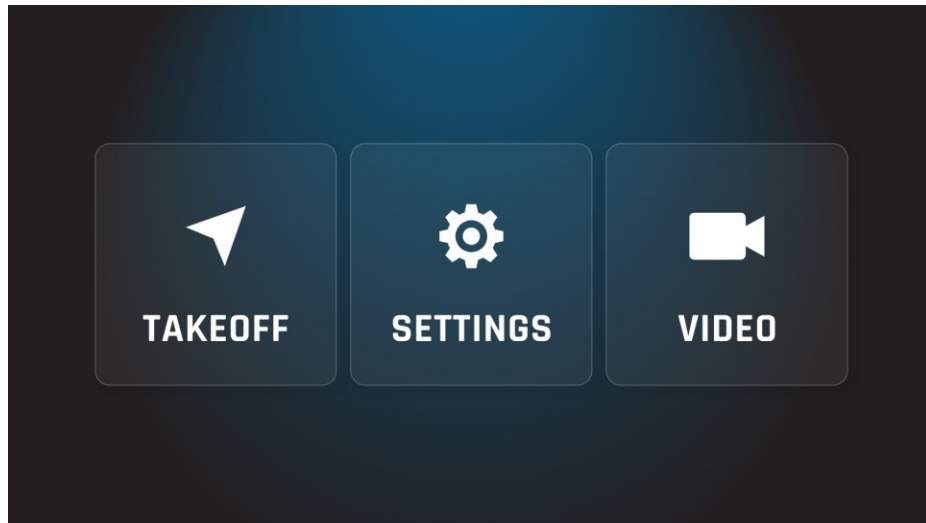
The pilot recruiting pop-up window may appear at the following times:

- After binding TAITEN to an aircraft
- When communication is first established, e.g. after the aircraft and the controller are powered on
- After initiating a “Switching request” from the settings menu (only possible with pilot authority).



If no controller accepts pilot authority, the pilot recruitment pop-up window will continue to be displayed. Upon successful pilot recruitment, a pop-up message “Switched to pilot” or “Switched to observer” appears.

8. Home screen

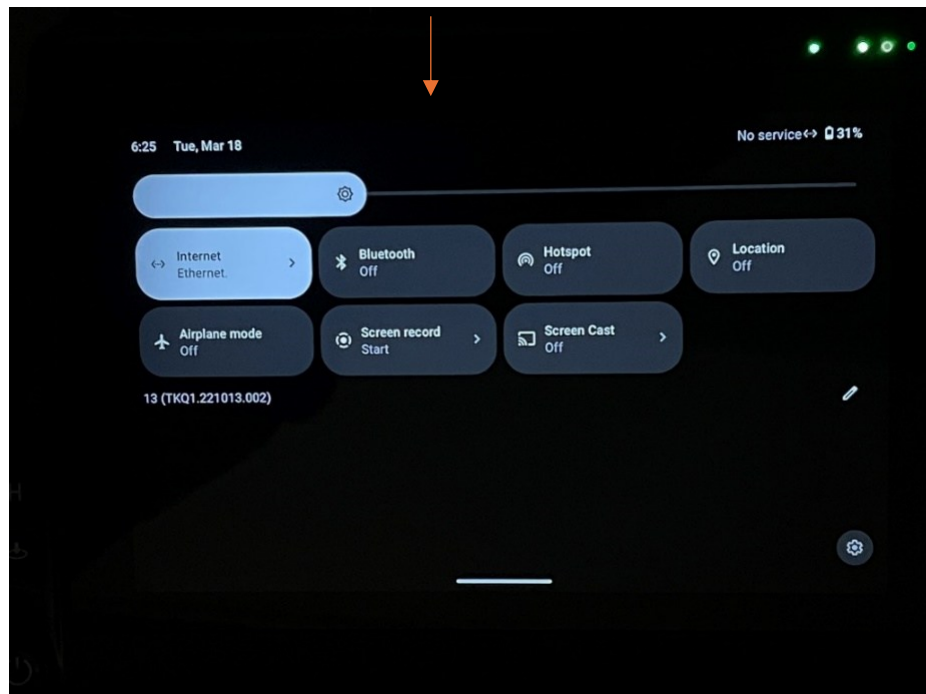


There are 3 icons on the home screen.

Tap an icon to use its function.

Android status bar and notification

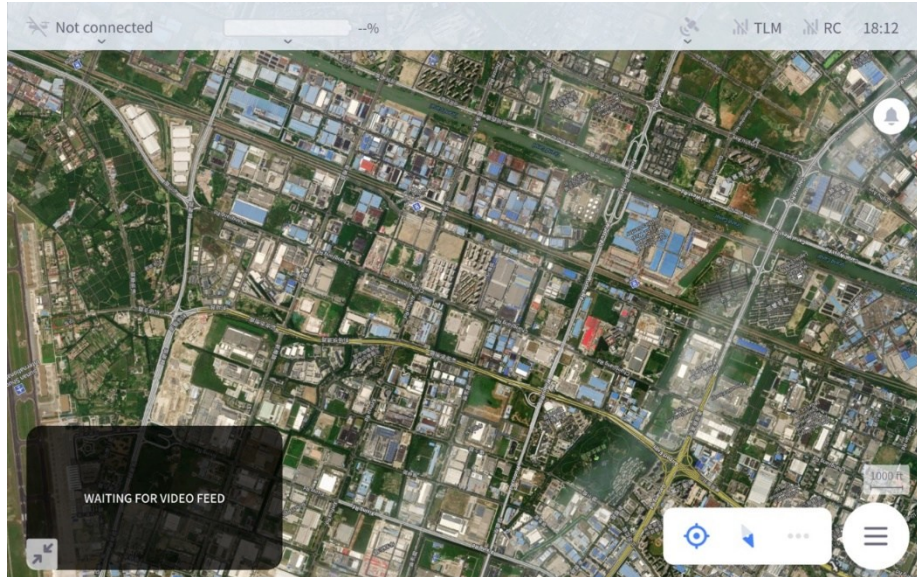
Slide from the top to display the notification and status bar. Slide again to extend the bar.



Slide from the bottom and hold to display the currently open applications.

9. GCS (Ground Control System)

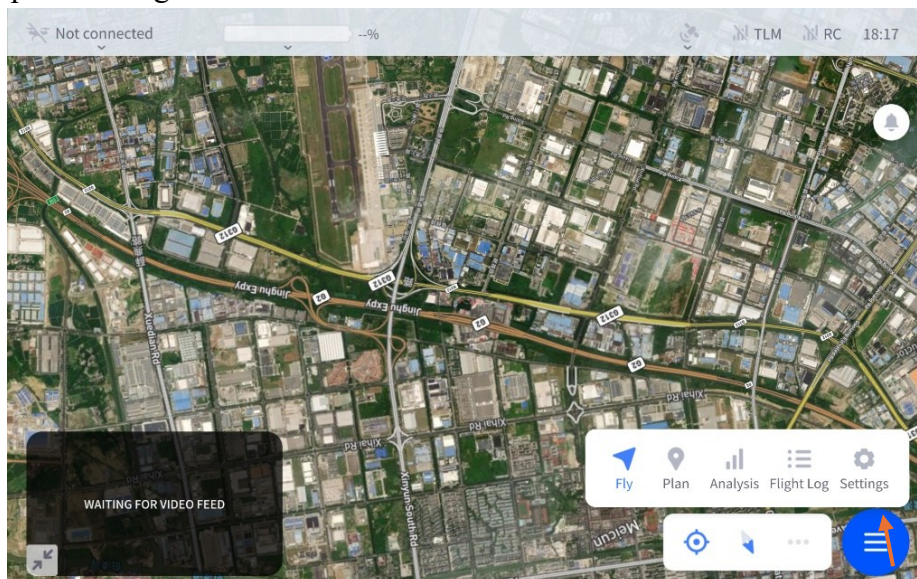
Tap the GCS icon to open the ACSL TAKEOFF ground control application. The details are described below.



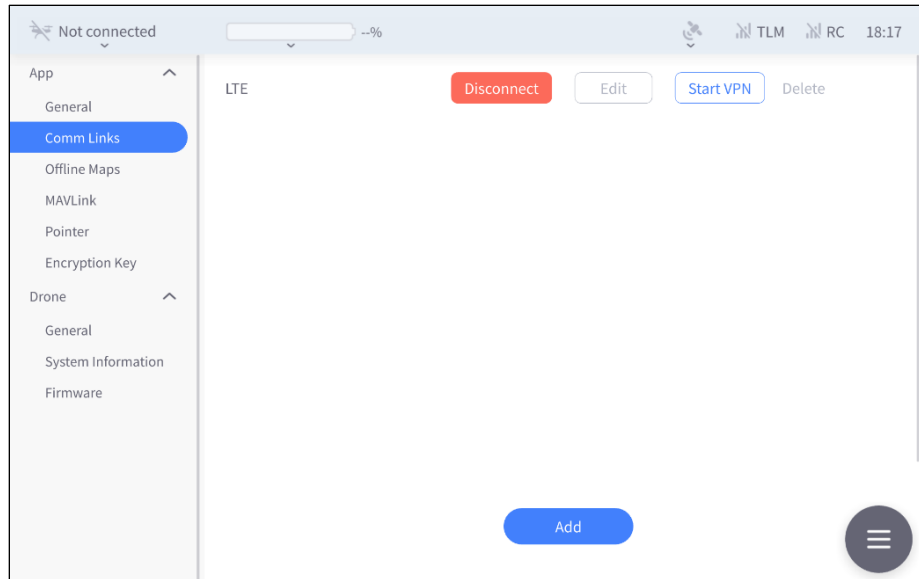
9.1. Setting the communication link

After the controller is bound to the aircraft, some additional communication settings are required in the ACSL TAKEOFF Ground Control Application to communicate with the aircraft.

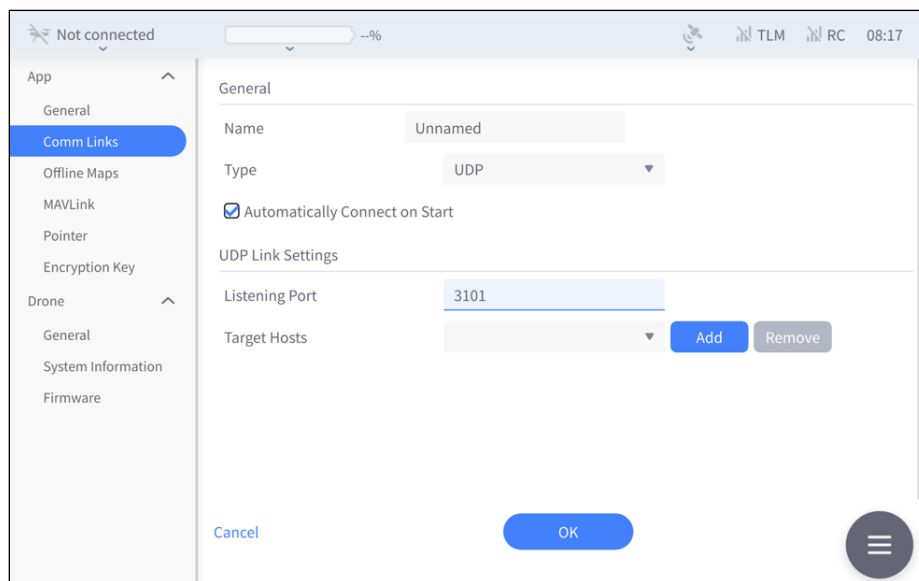
- (1) Open “Settings” from the TAKEOFF menu.



- (2) Tap on “Comm Links” and then add an UDP communication link.



- (3) Input the listening port number, for example: 3101. Check the “automatically connect on start” to have an auto-connection.



- (4) In Settings program → network, set the same port number as that in TAKEOFF, the IP address is that of the controller, user can check it from Android settings.

Network	
Ethernet IP Assignment Mode	Manual
Ethernet IP Address	
Video Source IP Address	192.168.10.1
Video Stream Protocol	RTP (Multicast)
Wi-Fi	
RC IP	192.168.10.10
RC SubNetMask	255.255.255.0
RC MavlinkHost	192.168.10.20:3101

←

Ethernet

IP address

192.168.10.20

netmask

255.255.255.0

gateway

192.168.10.14

dns1

0.0.0.0

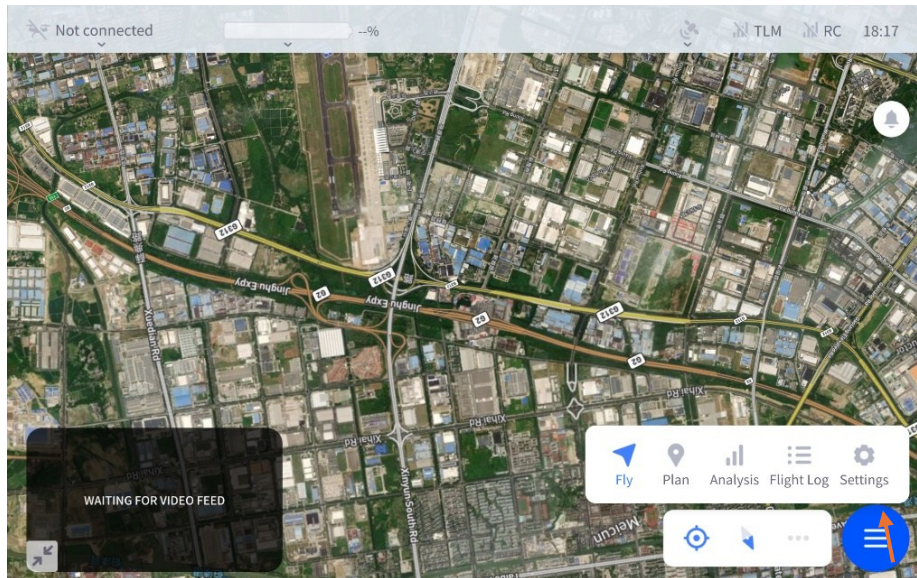
dns2

0.0.0.0

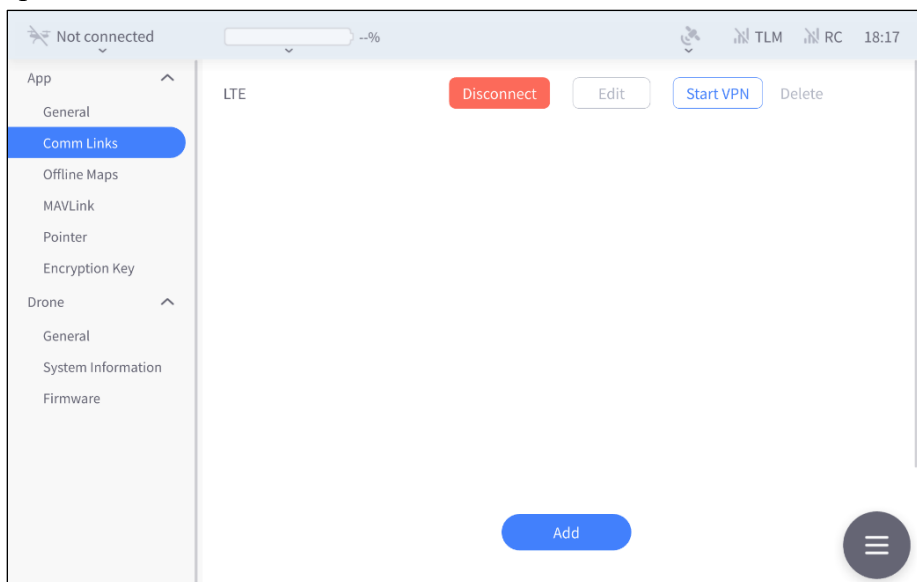
9.2. Connect TAKEOFF on a PC

Connect a PC to TAITEN by an Ethernet cable, install and run the TAKEOFF on the PC, user can have TAKEOFF connected with the aircraft.

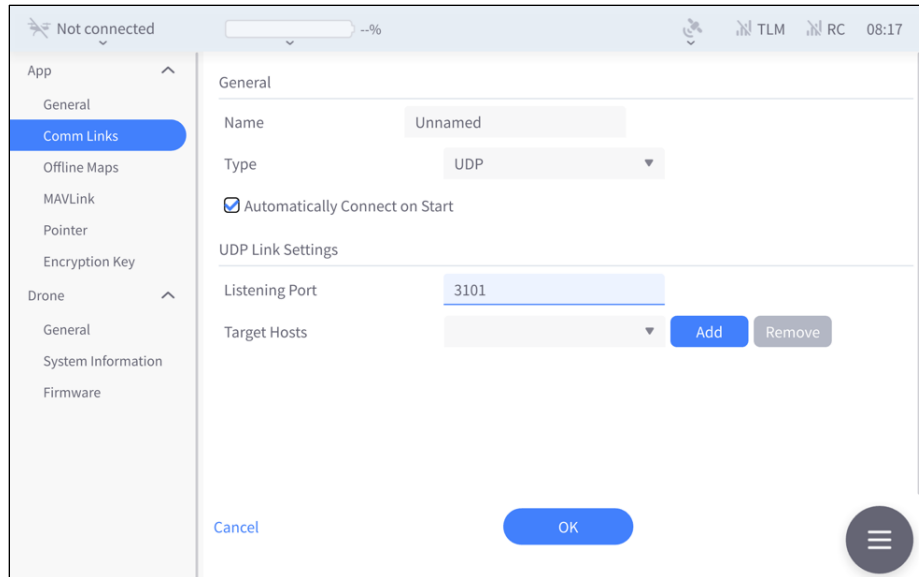
- (1) Open “Settings” from the TAKEOFF menu.



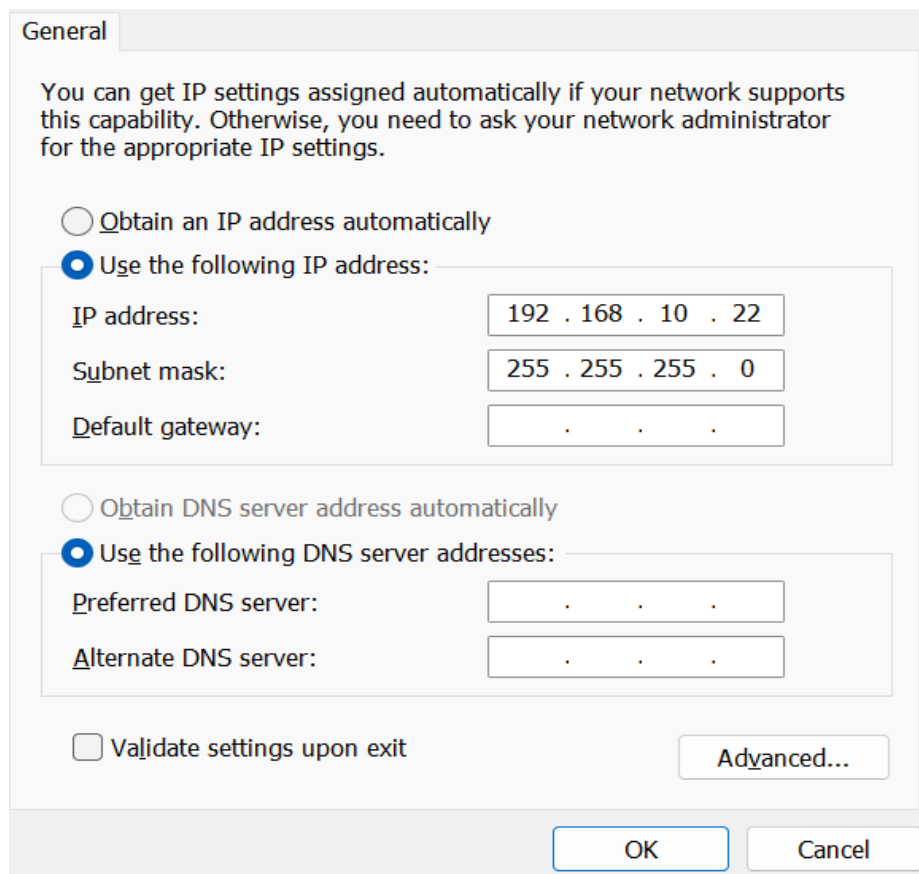
(1) Tap on “Comm Links” and then add an UDP communication link.



(2) Input the listening port number, for example: 3101. Check the “automatically connect on start” to have an auto-connection.



- (3) In Windows PC settings, set an IP address in the same subnet with controller, for example 192.168.10.22, which should be different from the controller's IP address.



- (4) In TAITEN Settings program→network, set the same port number as that in TAKEOFF, the IP address is that of the connected PC, which is set in last step.

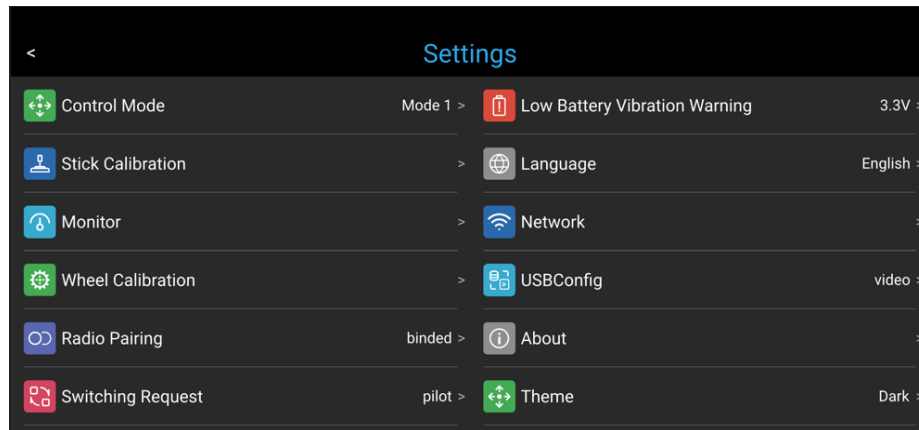


Network	
Ethernet IP Assignment Mode	Manual
Ethernet IP Address	
Video Source IP Address	192.168.10.1
Video Stream Protocol	RTP (Multicast)
Wi-Fi	
RC IP	192.168.10.10
RC SubNetMask	255.255.255.0
RC MavlinkHost	192.168.10.22:3101

10. Settings

Tap the settings icon from the home screen next to the GCS icon to go to the settings screen.

Tap a menu item to adjust its settings.



10.1. Control mode

Switch the assignment of the control sticks

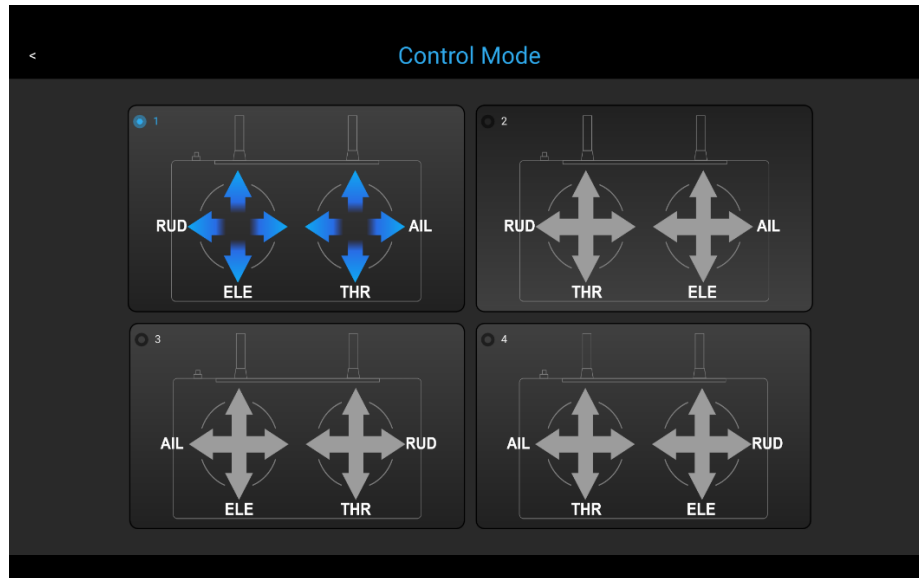
AIL: Aileron – lateral (roll/left and right) movement

ELE: Elevator – longitudinal (pitch/forward and backward) movement

THR: Throttle – vertical (ascent and descent) movement

RUD: Rudder – heading (yaw) movement

Select your preferred mode and return by swapping from left to right on the screen or tapping “<” in the upper left corner.

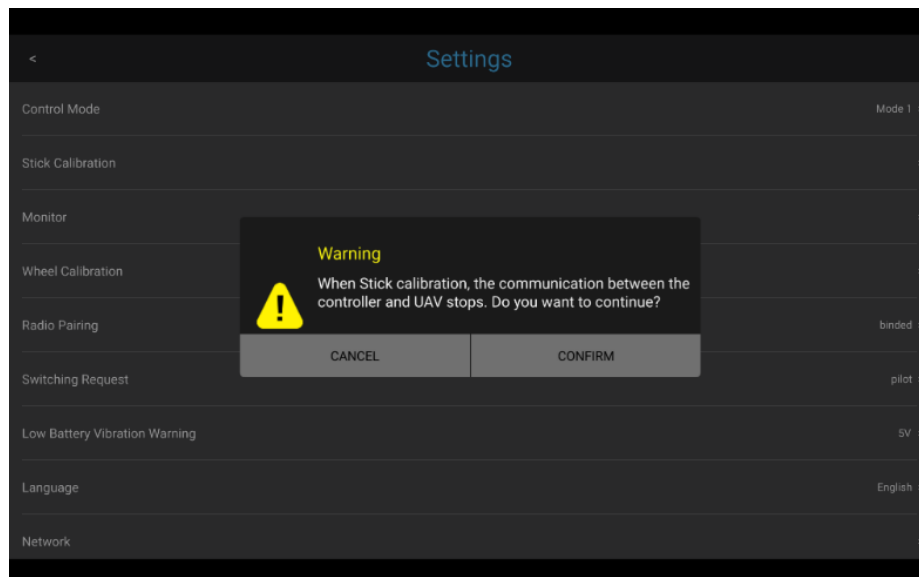


10.2. Stick calibration

An improperly calibrated stick may result in issues such as drifting motion of the aircraft when the sticks are centered, failure to arm the motors, and the inability to issue the maximum stick commands. Performing a stick calibration can resolve these issues.

Note that when “Stick Calibration” is tapped, a warning as shown below is displayed.

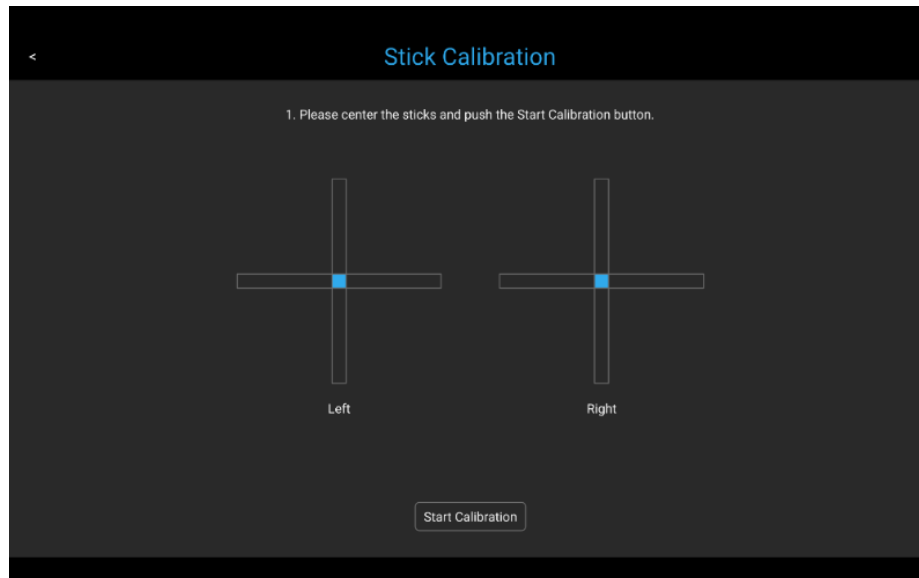
Communication with the aircraft will be interrupted, so ensure a safe condition before tapping “CONFIRM”. Tapping “CANCEL” will return to the settings menu.



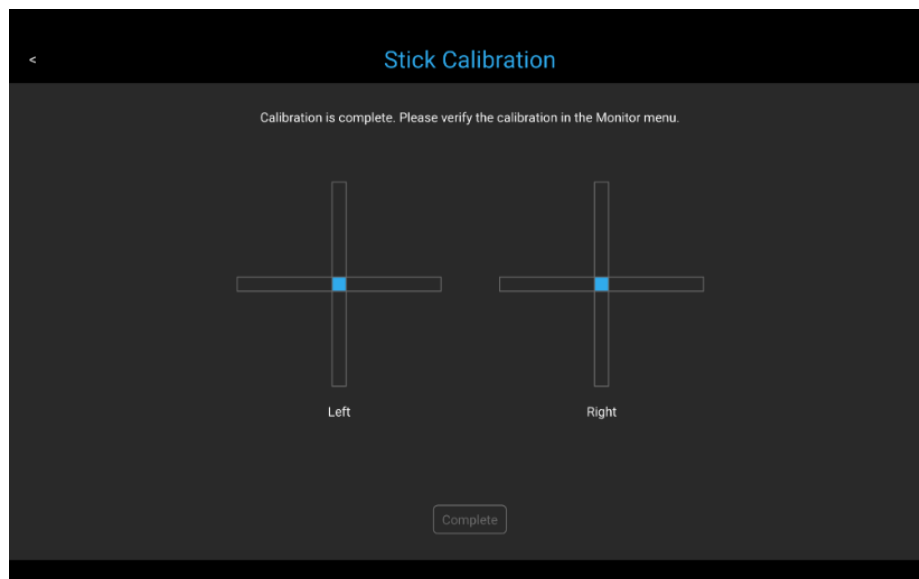
WARNING

Do not perform stick calibration during flight. Communication with the aircraft will be interrupted and issuing commands to the aircraft will not be possible.

Follow the instructions displayed on the screen.



When stick calibration is completed, go back by swapping from left to right on the screen or tapping "<" in the upper left corner.

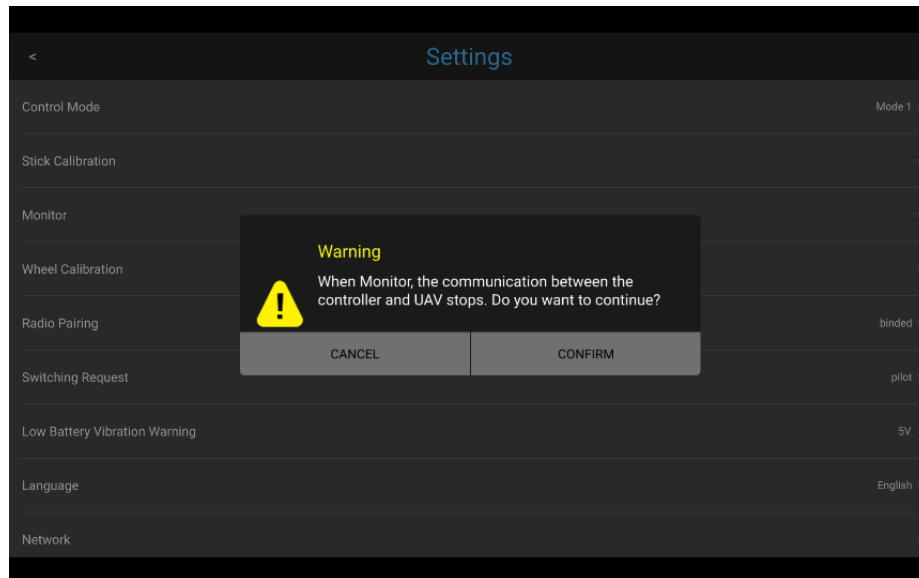


10.3. Monitor

The operation of each stick, button, and wheel can be checked using the Monitor function.

Note that when "Monitor" is tapped, a warning as shown below is displayed.

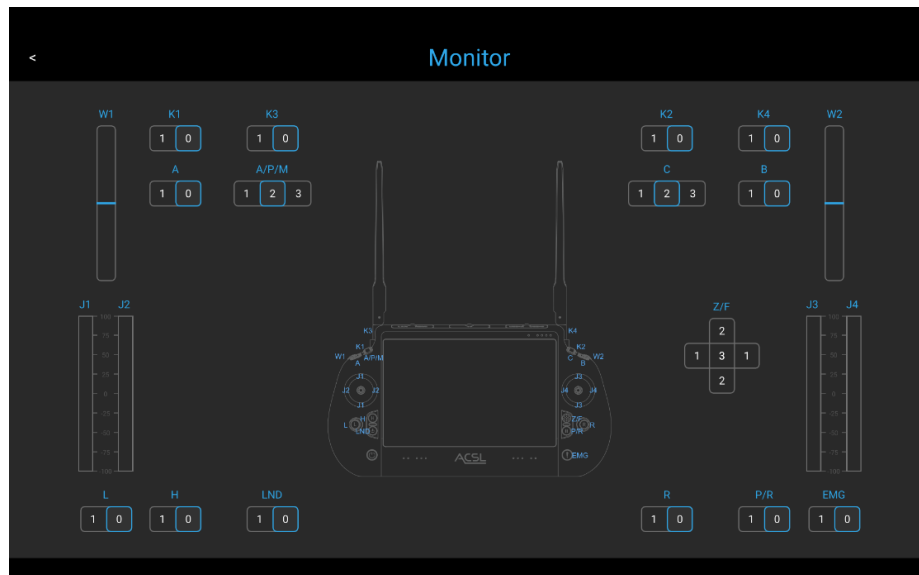
Communication with the aircraft will be interrupted, so ensure a safe condition before tapping “CONFIRM”. Tapping “CANCEL” will return to the settings menu.



WARNING

Do not use the monitor function during flight. Communication with the aircraft will be interrupted and issuing commands to the aircraft will not be possible.

The operation of each switch, button, and wheel can be checked on the screen as shown below. Check the screen after calibration or an abnormality is felt.



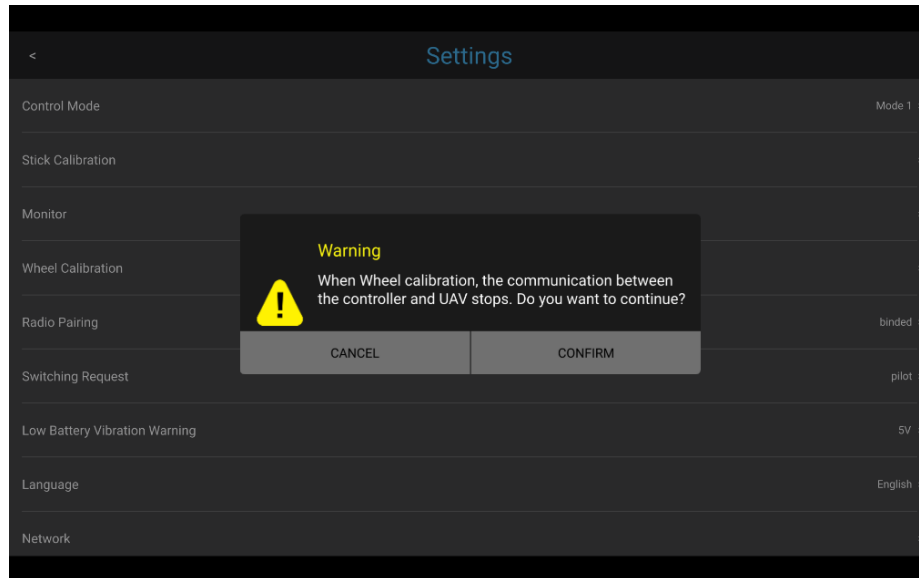
Go back tapping “<” in the upper left corner.

10.4. Wheel calibration

An improperly calibrated wheel may result in issues such as drifting motion of the camera gimbal when the wheel is centered, and the inability to issue the maximum wheel commands. Performing a wheel calibration can resolve these issues.

Note that when “Wheel Calibration” is tapped, a warning as shown below is displayed.

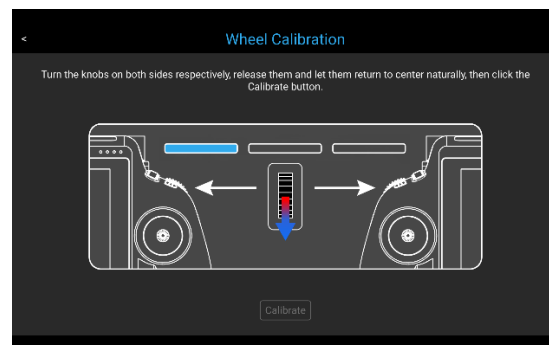
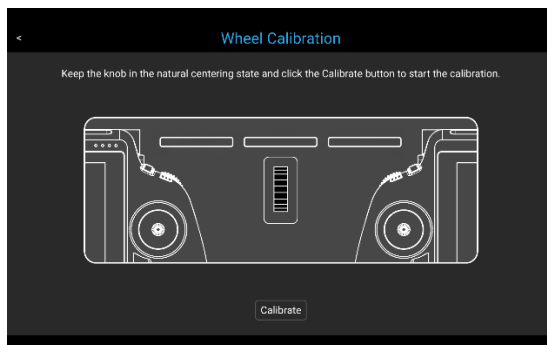
Communication with the aircraft will be interrupted, so ensure a safe condition before tapping “CONFIRM”. Tapping “CANCEL” will return to the settings menu.

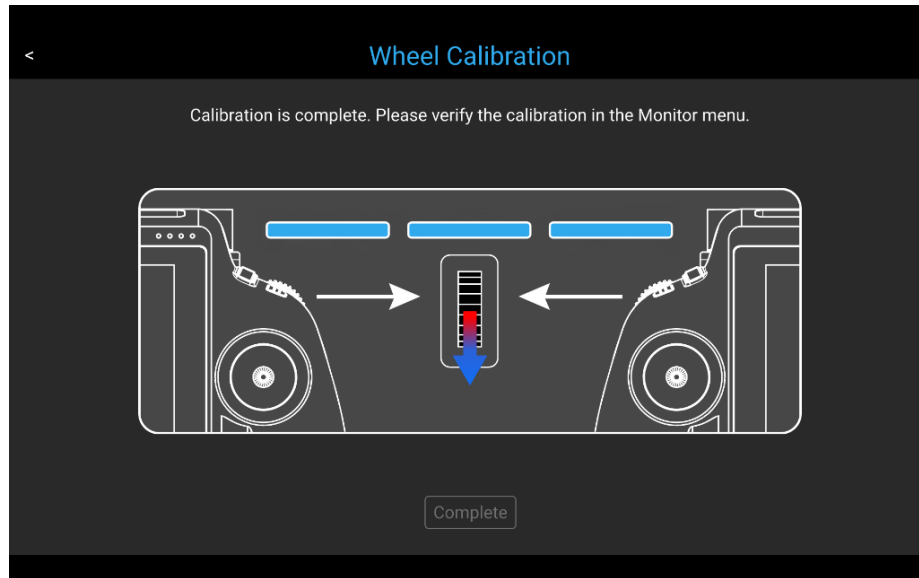


WARNING

Do not perform wheel calibration during flight. Communication with the aircraft will be interrupted and issuing commands to the aircraft will not be possible.

Follow the instructions displayed on the screen.





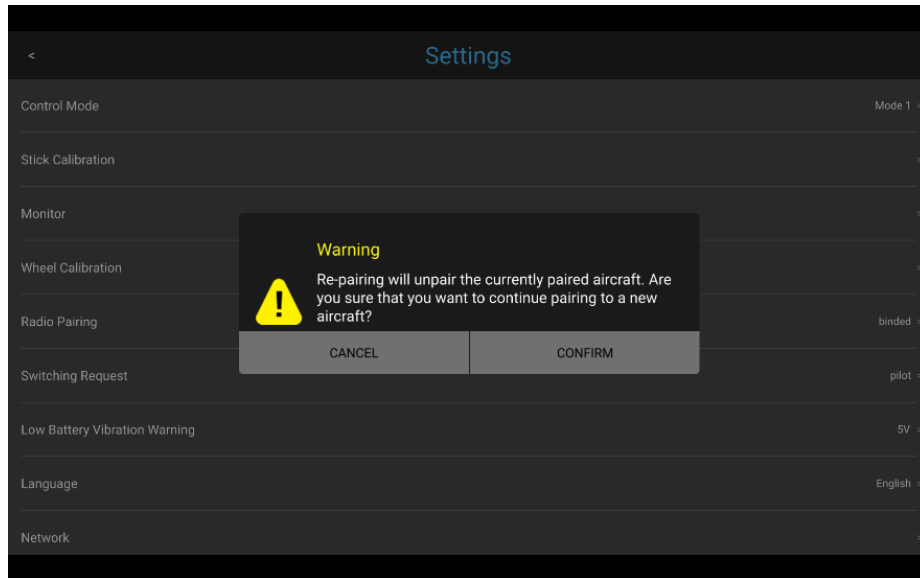
When the calibration is completed, go back by swapping from left to right on the screen or tapping “<” in the upper left corner.

10.5. Radio Pairing

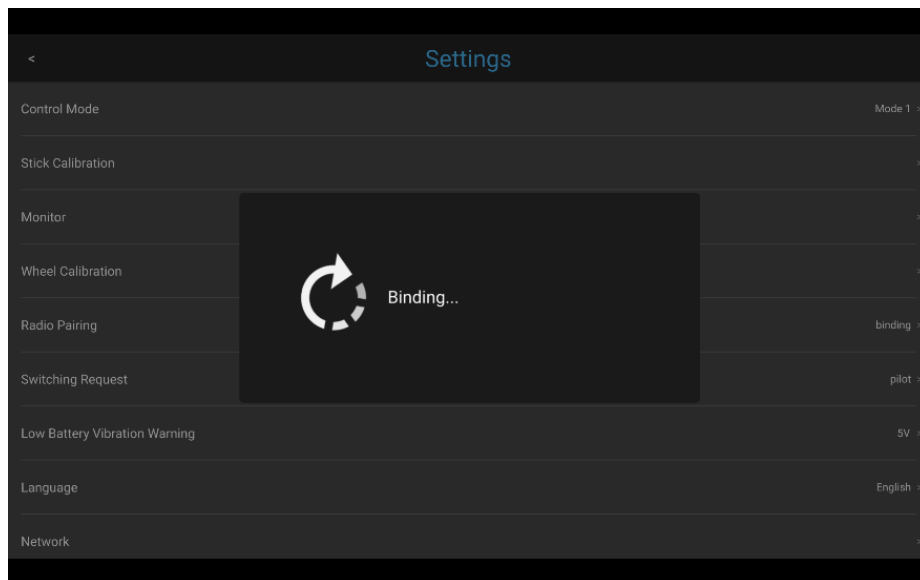
Note: The unit is bound already before factory delivery, the user does not need to bind again on receiving.

If the user would like to do bind for a particular case, please follow the below steps:

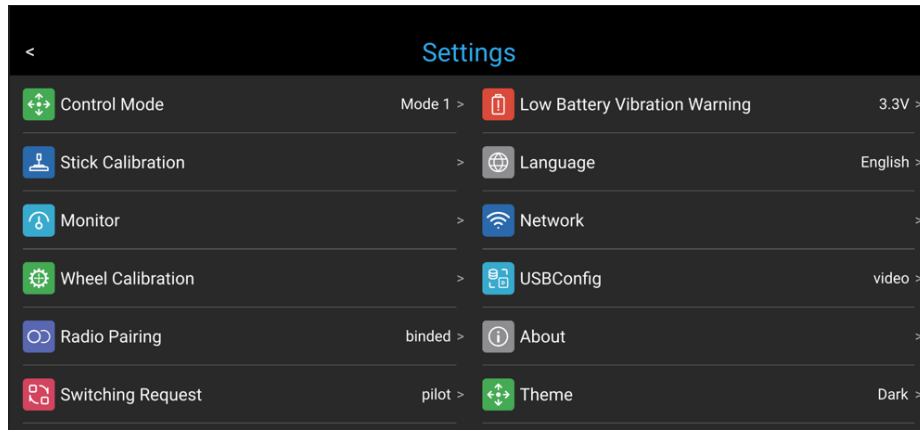
- (1) Power on the air unit, power on the remote controller, antennas must be installed before power on;
- (2) Press and hold the bind button of the air unit till the indication lights start flashing to get the air unit into the bind process, meanwhile, click on “Radio Pairing” to trigger the binding process of the ground unit (remote controller).
- (3) When a warning to confirm the start of binding is displayed, tap “CONFIRM”.



(4) When the following screen is displayed, the binding process will begin.



(5) When the binding process is completed successfully, the status of “Radio Pairing” will be displayed as “Binded” as shown below.

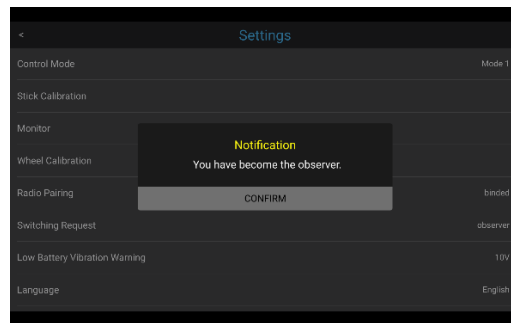
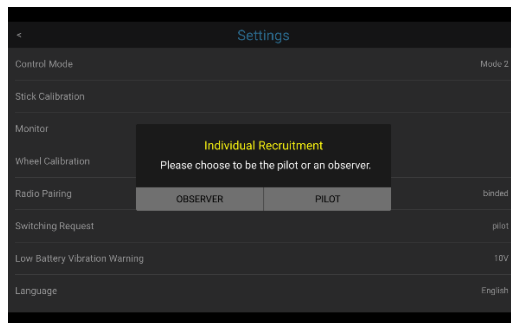


10.6. Switching Request

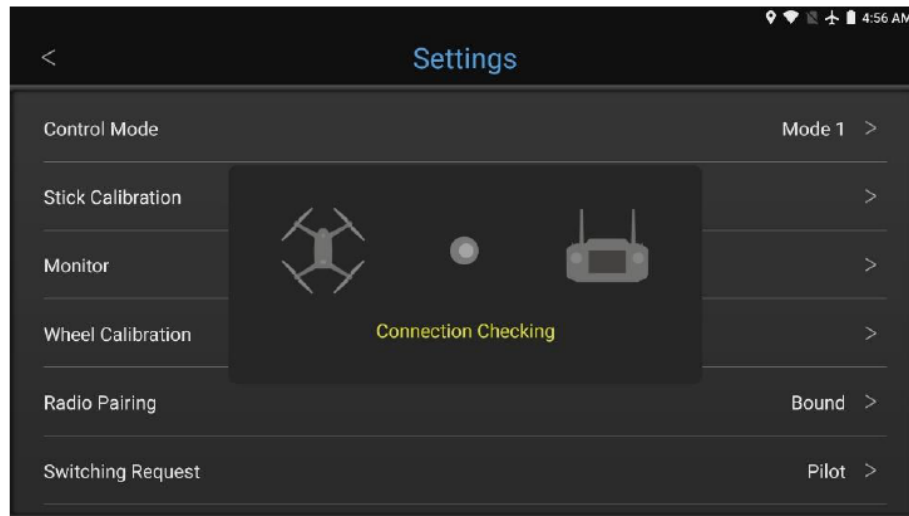
TAITEN allows switching between pilot and observer modes. In pilot mode, both operation and monitoring are possible. In observer mode, only monitoring is possible, no operational commands can be sent to the aircraft.

The “Switching Request” function is used to switch from pilot mode to observer mode, i.e. to hand over control to another controller that is bound to the same aircraft.

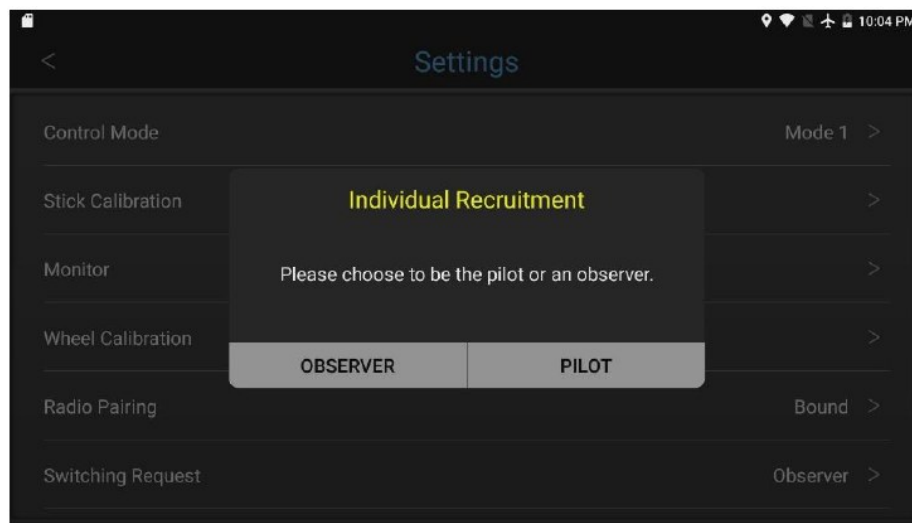
- (1) When “Switching Request” is tapped while in pilot mode, a warning as shown below will be displayed.



- (2) Tap “CONFIRM” to release pilot authority. The aircraft will begin the process of recruiting a new pilot.

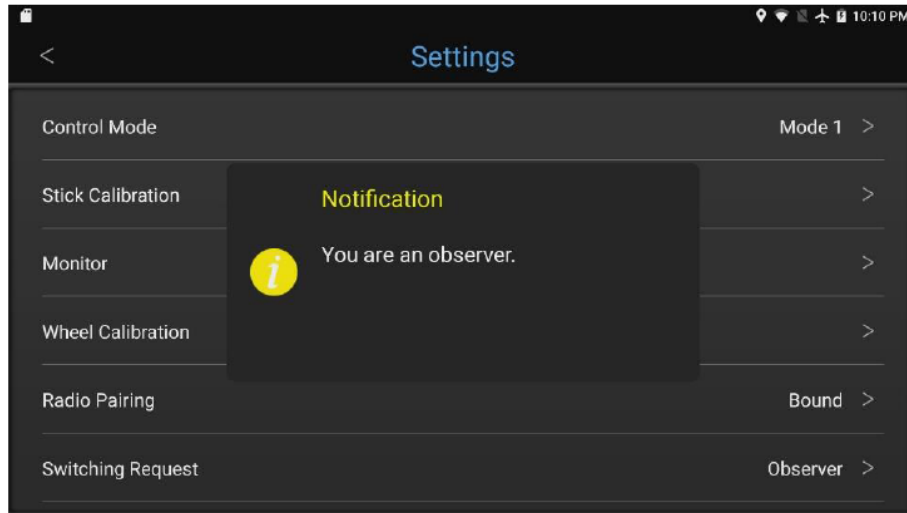


(3) During this operation, other bound controllers will display the screen below.



(4) When “PILOT” is selected by another controller within a certain amount of time, the controller that was originally in pilot mode now displays the notification “You are an observer” and switches to observer mode.

If “PILOT” is not selected on any of the other controller within a certain amount of time, the controller that was originally in pilot mode will retain pilot authority.

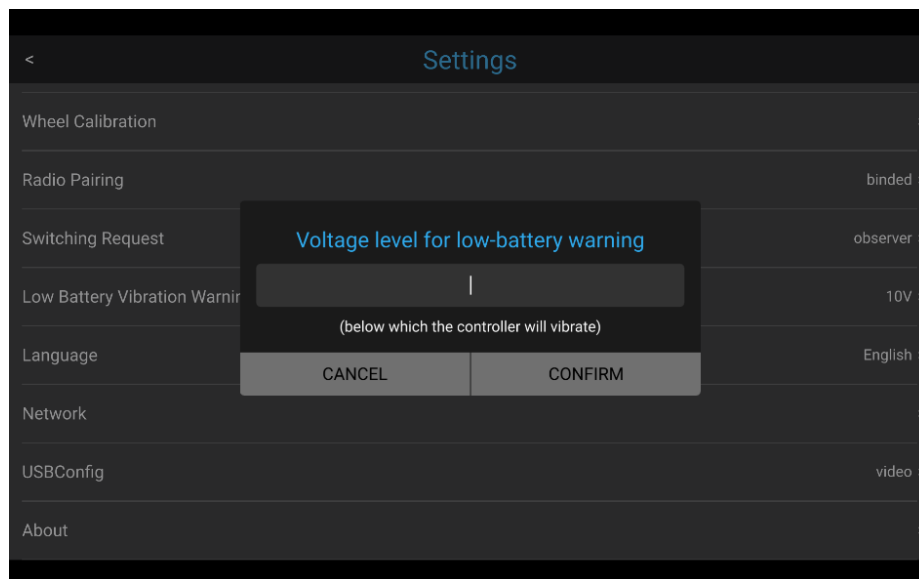


10.7. Low-Battery Vibration Warning

If the voltage of the aircraft's battery drops below the value set here, the controller will vibrate to warn you that the aircraft's battery is low.

The default setting is 3.6V is appropriate for Lithium-Ion and Lithium-Polymer batteries, which have a typical voltage of 4.2V per cell when full, and 3.0V per cell when empty.

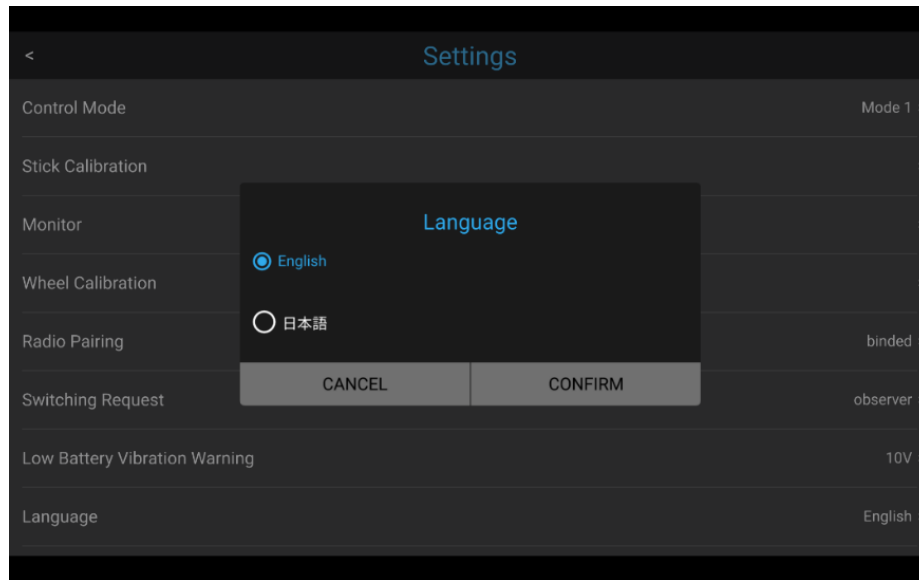
Change the value as described.



10.8. Language

Select English or Japanese and tap “CONFIRM” to switch the display to the selected language.

To return to the menu screen without changing the language, tap “CANCEL”.



10.9. Network

Configuration of network related settings.

Ethernet IP Assignment Mode

Use this setting to connect the controller to a Local Area Network using the RJ-45 Ethernet port. Select “Auto (DHCP)” to have the device’s IP address assigned automatically by the network or select “Manual” to specify an IP address.

Ethernet IP Address

If the External Ethernet IP Assignment Mode is set to Manual, enter an IP address here.

Video Source IP Address

This item is for development purposes only. It is the IP address set for video transmission.

Video Stream Protocol

This item is for development purposes only. It is the protocol set for each model RTSP or RTP(Multicast). Do not change the setting.

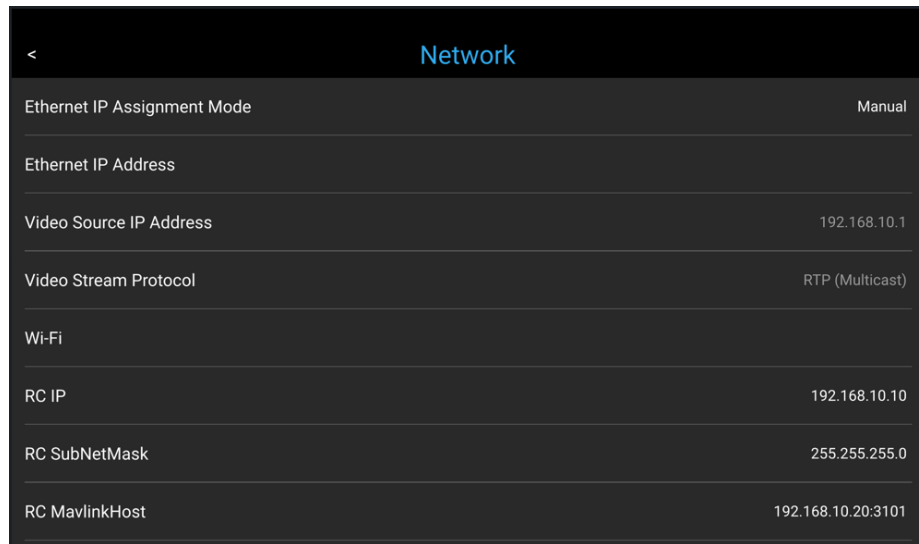
Wi-Fi Connection is discussed next.

RC IP & RC SubNetMask:

This is the remote controller android IP address and subnet mask.

RC MavlinkHost:

This is the Mavlink host IP and UDP port.



Wi-Fi

Connect TAITEN to a Wi-Fi network, mainly intended for the TAKEOFF ground control application to retrieve map data.

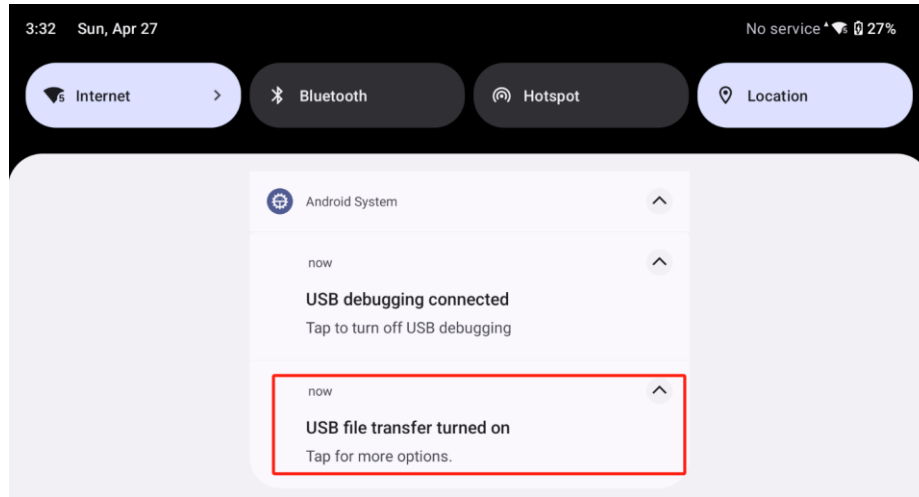
Tap “Wi-Fi” to display the following screen. Tap the Wi-Fi switch to detect Wi-Fi access points. Tap the desired Wi-Fi access point and enter the password to establish a Wi-Fi connection.



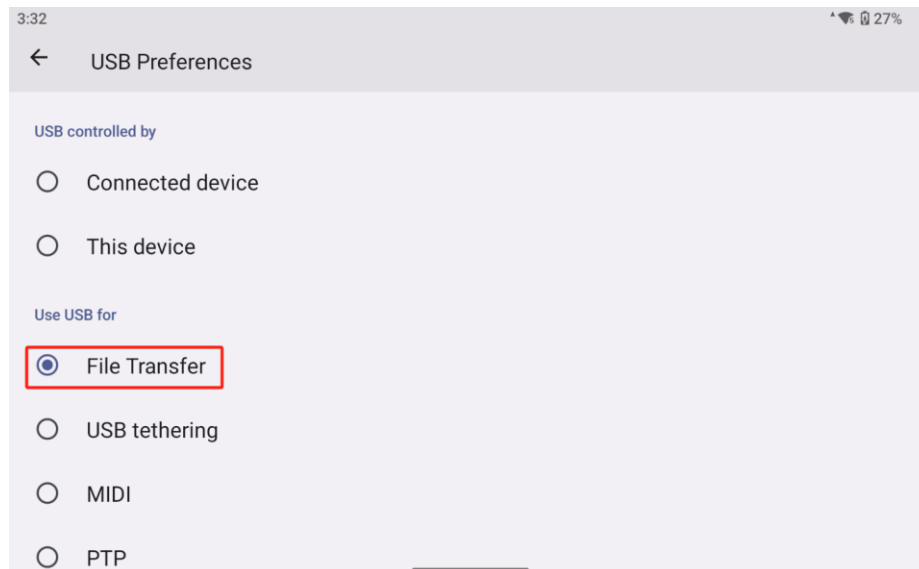
10.10. USBConfig

By default, it's in "video" mode for camera video transmission, if user want to transfer files between a PC and TAITEN via an USB cable connection, please follow below steps:

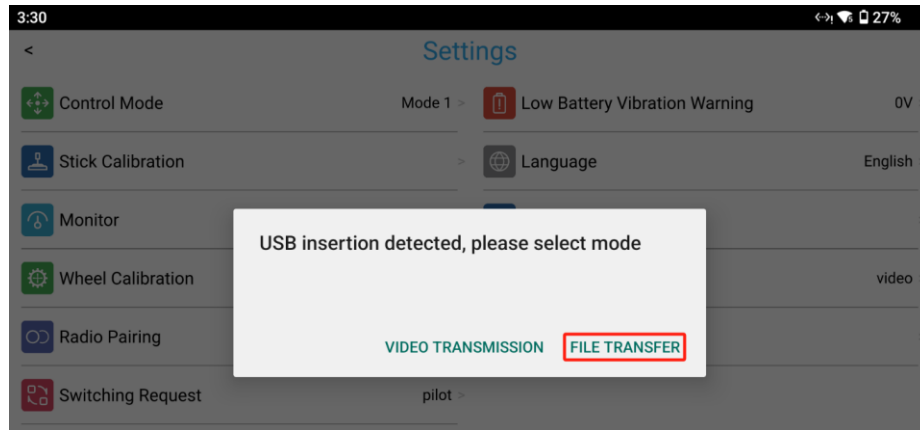
- (1) Connect the PC to TAITEN's USB-C port by an USB cable, below Android system message will pop up, tap for more options



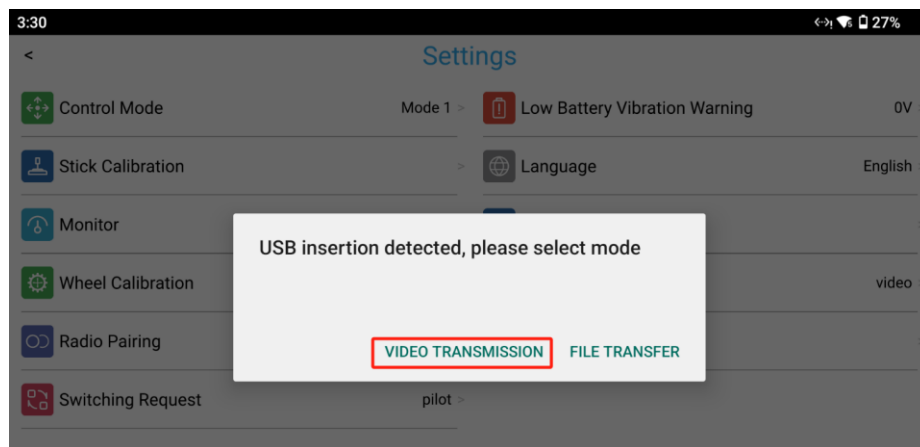
- (2) Select file transfer



- (3) In TAITEN Settings program, change the USB configuration to file transfer mode.

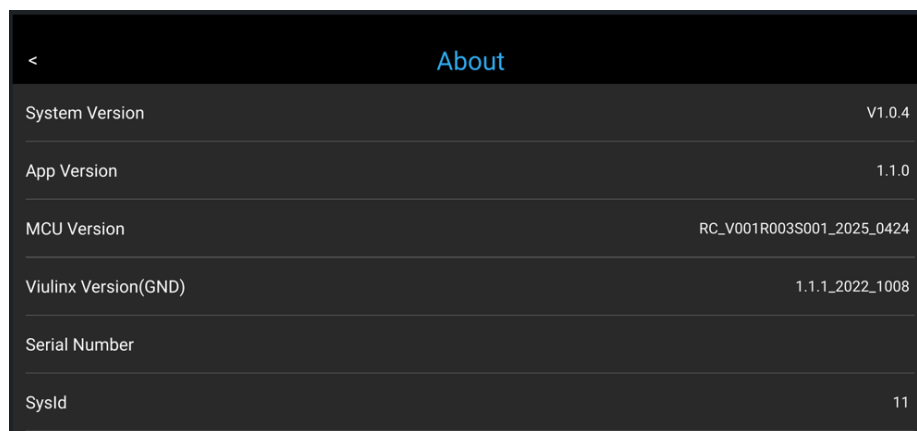


(4) After file transfer, please change it back to video transmission mode.



10.11. About

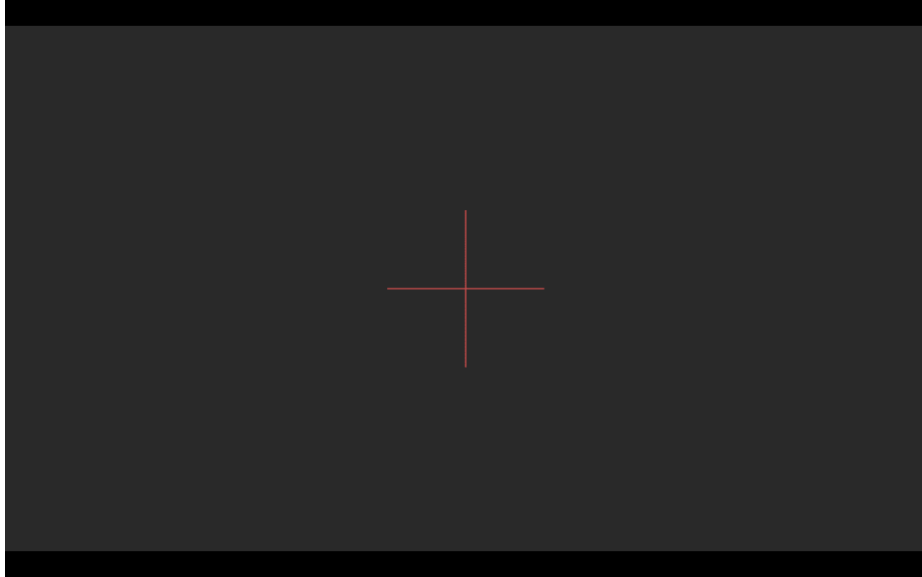
Software versions and serial number.



* Immediately after startup, the MCU Version may be displayed as unknown until the microcontroller unit (MCU) has fully started up. If the version does not appear after you wait for a while, contact the technical team.

11. Video

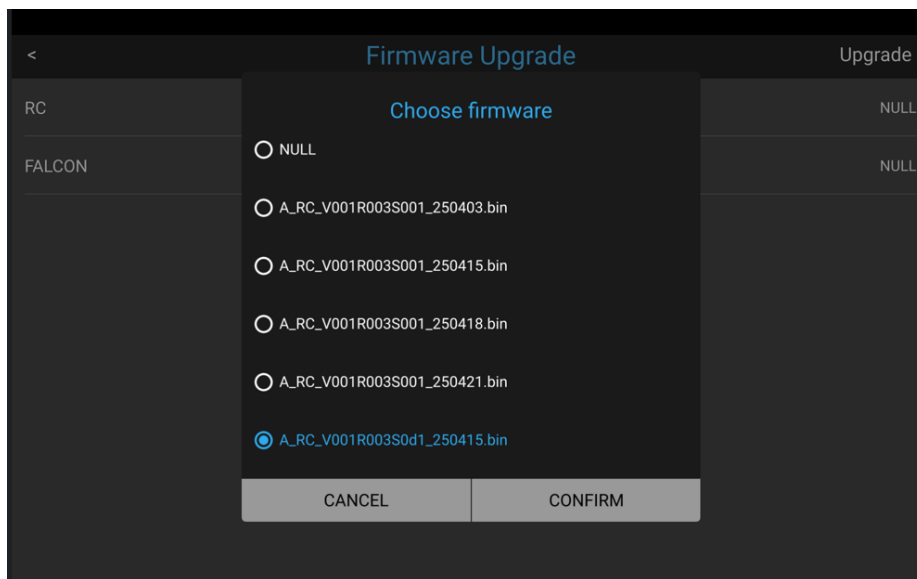
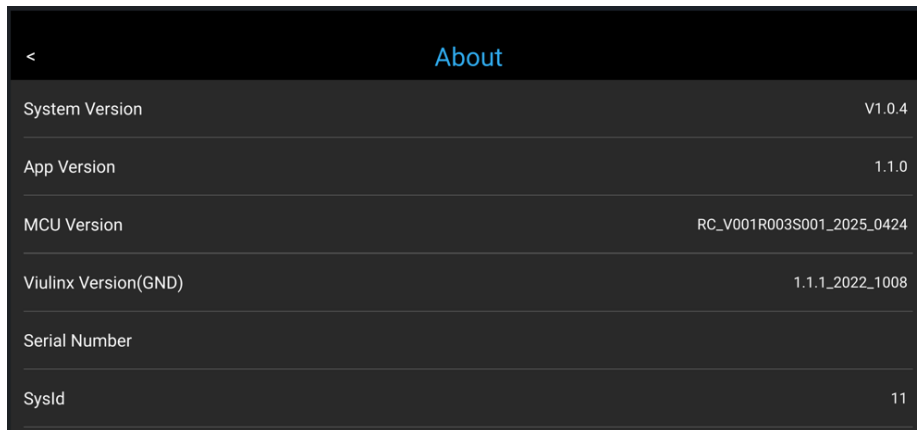
The video function shows the real-time video stream from the aircraft without any other UI elements.



To go back to the home screen, press the L button.

12. Firmware update

To update the firmware of RC MCU and/or Raptor ground unit, copy the upgrade file into root directory of a USB stick, insert the USB stick into USB-A port of TAITEN, tap on the RC Version or Raptor Version 8 times in a row to bring up the upgrade window.



13. Troubleshooting

Trouble	Solution
The power does not turn on.	The battery may be dead. Charge the battery.
When the charger is connected, "Charging abnormal! Please check the connection of USB adapter!" is displayed.	This error message may be displayed when the connection is unstable, such as when the charging cable is connected slowly. Make sure that the charging cable is securely connected.
Moving a control stick to the maximum position does not give the maximum value.	Perform stick calibration.
Turning a wheel to the maximum position does not give the maximum value.	Perform wheel calibration.

FCC Statement:

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two

conditions:

- (1) This device may not cause harmful interference, and
- (2) this device must accept any interference received, including interference that may cause undesired operation.

This equipment 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 equipment 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 equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment 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.

FCC Caution

Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment. This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

Radiation Exposure Statement:

The exposure standard for wireless transmitter employs a unit of measurement known as the Specific Absorption Rate, or SAR. The SAR limit set by the FCC is 1.6W/ kg. The highest reported FCC SAR values for body-worn is 0.54W/ kg(1g).

