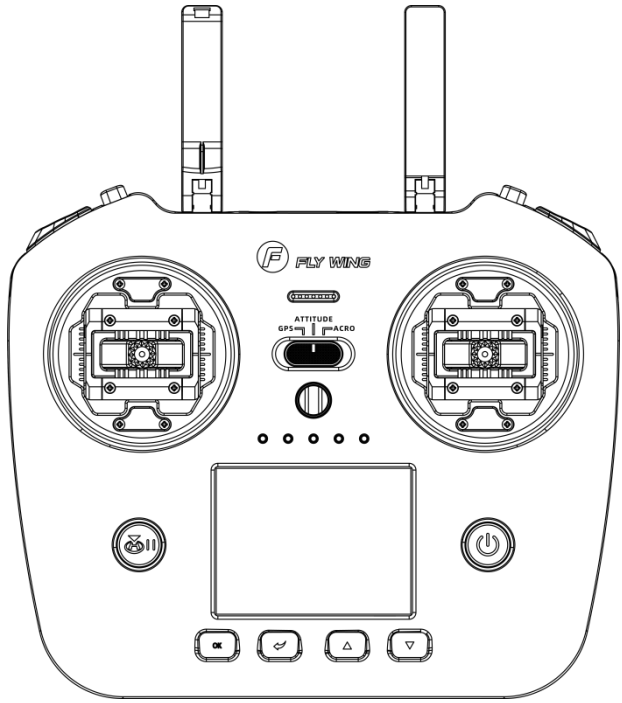
FY-RC02

Smart Telemetry Transmitter

User Manual



FLY WING

Reading Tips

Legend

Important Hints and Tips

Read Before the First Use

It is recommended to first watch the instructional videos and read the FY-RC02 User Manual. Learn about operating procedures and Safety Precautions related content.Operate this product safely and in accordance with all applicable local laws and regulations.

Tutorial Videos

Visit the link below or scan the QR code to watch tutorial videos before using the product: https://www.flywingrc.com/



OFFICIAL WEBSITE YOUTUBE TIKTOK

Download the Software

Download the FY-RC02 update software from the page below:

https://flywingrc.com/pages/software-downloads

The operating temperature range of this product is -10 °C to 40 °C. It does not meet the standard operating temperature for military-grade applications (-55 °C to 125 °C), which requires higher environmental adaptability. Please operate the helicopter appropriately only in environments that meet the specified requirements.

Safety Precautions

Before using this RC transmitter and compatible helicopters, carefully read and strictly follow the instructions below. Proper operation helps protect the equipment and ensures personal and public safety. The user assumes full responsibility for any equipment damage or safety incidents resulting from improper operation, unauthorized modification, or misuse.

- This is professional RC equipment. Children shall not operate it without continuous adult supervision. Minors are prohibited from independently powering on, operating the unit or touching batteries, circuits and critical components.
- Inspect the transmitter, receiver, flight controller, battery and power system thoroughly before every use. Do not power on if any part is damaged, loose, degraded or faulty.
- Do not operate in airports, no-fly zones, military restricted areas, crowded zones, major roads or places with flammable/explosive materials. Keep away from strong electromagnetic interference and high-voltage lines to avoid signal loss and loss of control. Comply with all local laws and regulations and fly responsibly.
- Do not use or store the device in wet, extreme temperature, direct sunlight, heavy vibration, dusty, oily or corrosive environments.
- Do not cover, bend or damage antennas during operation. Immediately stop operation and power off for inspection if antennas are loose/damaged, RF errors or abnormal signals occur. Do not operate with known faults.
- Unauthorized disassembly, modification or replacement of RF modules, antennas, batteries, charging/main circuits, housing, hardware parameters or wiring is forbidden. Unofficial modifications create safety hazards and void the warranty. Only genuine or officially recommended spare parts can be used.
- After firmware updates or parameter changes, complete full ground tests. Verify signal transmission, control response, power output and warning functions before flight. Experienced pilots only shall use advanced flight modes. Perform ground tests plus cautious hover tests in an open safe area before normal flight after parameter adjustment.
- Only use original batteries and compliant chargers. Never leave batteries unattended while charging. Avoid over-charging and over-discharging. For long-term storage, check battery charge at least monthly.
- If signal loss, control lag, fault warnings or any abnormality occurs mid-flight, land safely as soon as possible. After landing, stop motors, disconnect power and inspect the whole system before re-flight.
- Before powering on, confirm sufficient battery level and correct installation of RF modules and antennas. Power on the transmitter first, then check battery status, communication, channel outputs and system alerts. Stop use if abnormalities are found.

- After flight, power off the receiver first, then long-press to turn off the transmitter. For long-term storage, place in dry, ventilated space away from sunlight, vibration, impact and pressure.
- Stop flying immediately after crashes, hard landings, abnormal vibration or loss of control. Fully inspect transmitter, receiver, flight controller, wiring, servos, rotor system, battery and airframe before next flight.
- GPS assist, altitude hold, return-to-home and stabilization functions are pilot aids only. They cannot guarantee safe recovery under all conditions. Always be ready to take manual control.
- Do not self-disassemble or repair malfunctions. Contact official after-sales or qualified technicians. By using this device, you confirm you have read, understood and agree to abide by all safety instructions.

Pre-flight Check

- Confirm the transmitter battery is sufficiently charged.
- Confirm the helicopter battery is securely installed and sufficiently charged.
- Check blades, tail rotor, linkages, screws, wiring, receiver, antennas, and flight controller .
- Confirm the correct model type and flight mode are selected.
- Confirm there are no warnings on the transmitter screen.
- Confirm GPS and compass status before using GPS-assisted modes.
- Do not take off if any abnormal condition is detected.

Table of Contents

Product Overview

Introduction 1

Transmitter Components 1

Preparing the Transmitter

Charging 2

Mounting 2

Basic Operations

Checking the Battery Level 2

Powering On/Off 3

Binding the Transmitter 3

Stick Mode 4

Flight Mode 4

Feature Introduction

Main Screens 6

System Menu 6

Helicopter Parameters 9

Trainer / Simulator Function 12

Firmware Update 14

Appendix

Voice Announcement 15

Specifications 16

Product Overview

Introduction

The FY-RC02 transmitter features a custom telemetry link system operating on the 2.4 GHz frequency band and is used with compatible helicopters.

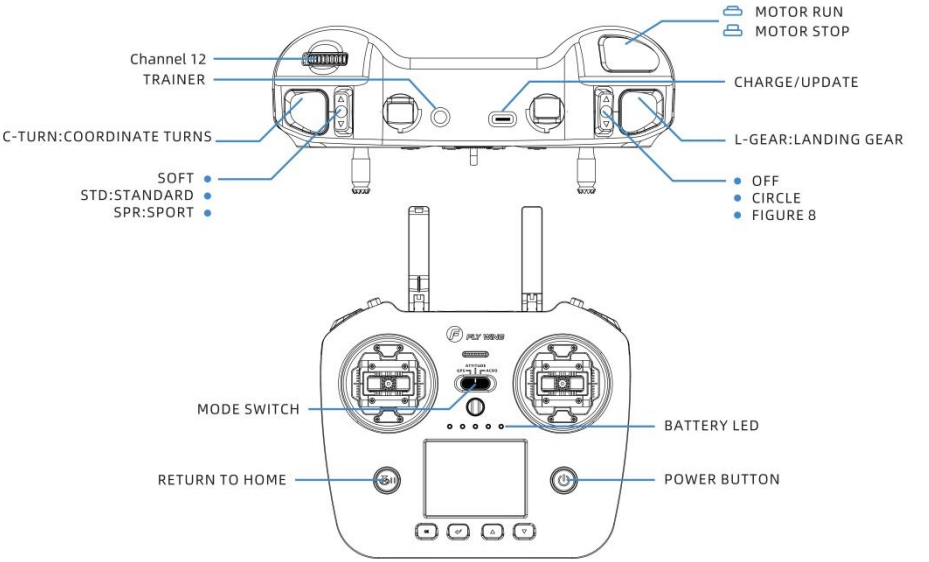
The built-in 2.8-inch color display shows flight attitude, sensor data, error messages, and other information. The transmitter also features a built-in speaker that provides voice announcements for helicopter status, warnings and errors, battery level and other relevant information.

The transmitter features a 5000 mAh 18.5 Wh battery, providing up to 7 hours of operation.

* When used with different helicopters, the FY-RC02 can read the model name of the selected helicopter and display it on the home screen.

* Permitted frequency bands vary by country and region. Please refer to local laws and regulations for details.

Transmitter Components



- If the transmitter will not be used for more than 10 days, it is recommended to discharge the battery until the third battery level LED lights up. Check the battery level and repeat this procedure once a month.

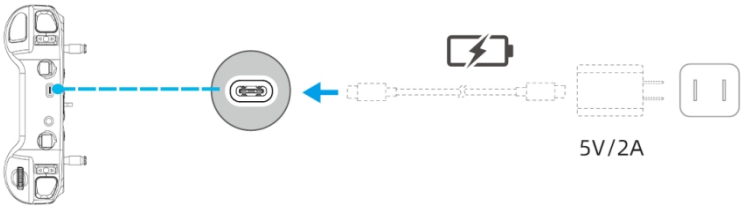
- On the main screen, short press the OK button to open the System Menu, or long press it to open the **Helicopter Parameters** menu.

Preparing the Transmitter

Charging

Connect the Charger

Connect a charger to the USB-C port on the transmitter. A full charge takes approximately 3 hours (using a user-supplied 5 V / 2 A charger).

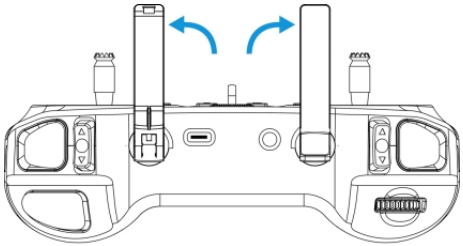


- Please Use a certified 5 V / 2 A USB power adapter from a reputable manufacturer. Ensure that the charging cable is in good condition. DO NOT use adapters that do not meet the required specifications.
- If the transmitter becomes excessively hot or emits an unusual odor, stop charging immediately. DO NOT charge in damp environments. For long-term storage, keep the battery at approximately 50% charge and recharge it regularly.

Mounting

Unfolding the Antennas

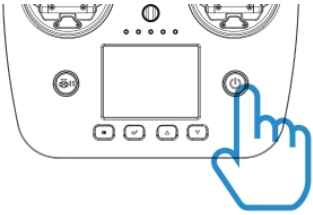
Pull out and rotate the antennas to the vertical position.



Basic Operations

Checking the Battery Level

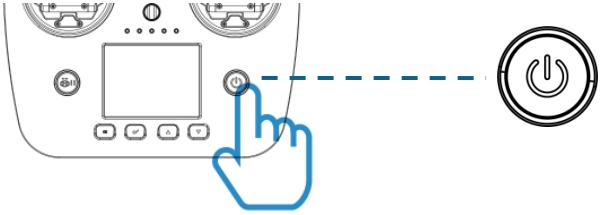
Short press the power button once. The battery level LEDs will indicate the current battery level.





Powering On/Off

Short press the power button once, then long press it for 3 seconds to power the transmitter on or off. Before powering off the transmitter, disconnect power from the helicopter and make sure the receiver is powered off.

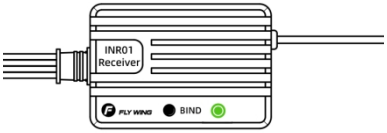


Binding the Transmitter

When the transmitter and INR01 receiver are purchased as a set, they are bound at the factory and can be used directly after powering on and activation. In other cases, follow the steps below to bind the transmitter and receiver.

1. Connect the receiver to the flight controller.
2. Power on the helicopter and the transmitter. Make sure the STOP/RUN switch is set to STOP.
3. Press and hold the BIND button on the receiver for about 4 seconds until the green LED flashes rapidly, then release the button.
4. Short press the OK button to open the **System Menu**, then select **RX bind**.
5. When the receiver LED turns solid green, the transmitter displays "Success."

 All Rights Reserved



Rapidly flashing green: Binding in progress.

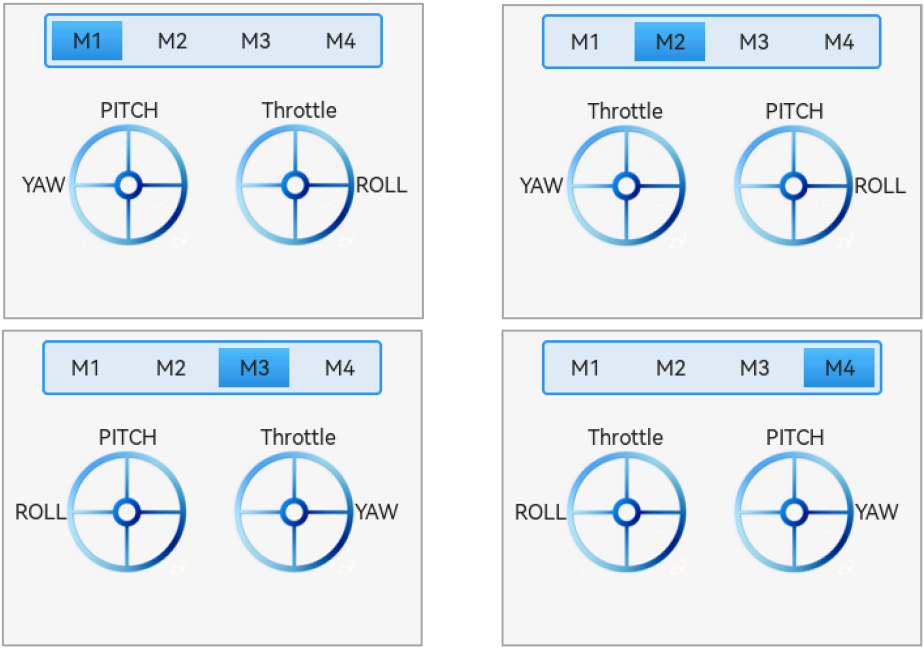
Slowly flashing green: Transmitter not connected.

Solid green: Transmitter connected.

- During binding, keep the transmitter and the receiver within 0.5 m of each other.
- The transmitter remembers previously bound receivers and automatically connects to them when they are powered on.
- If binding fails, power off the receiver, move it within 0.5 m of the transmitter, and try again.

Stick Mode

The transmitter supports four built-in stick modes. Short press the OK button to open the **System Menu**, select the second option **Sticks mode**, then press the OK button to select your desired mode. The default is Mode 2. Change the stick mode according to your preference.



Flight Mode

The transmitter supports multiple flight modes and features a three-position Mode switch on the front: GPS Mode (GPS), Freedom Mode (ATTITUDE), and Custom Mode (ACRO).

Custom Mode can be configured under the **Helicopter Parameters** menu, with any flight mode other than GPS Mode or Freedom Mode available for assignment.

GPS Mode:

GPS provides position correction, and the flight angle is limited. When the sticks are released, the helicopter automatically brakes, holds its altitude, and hovers in place.

Freedom Mode:

An enhanced Attitude (ATT) Mode with flight angle limits. When the sticks are released, the helicopter continues moving for a short distance due to inertia before gradually braking to a stop and hovering in place. Compared with GPS Mode, Freedom Mode applies much gentler braking, resulting in smoother, more natural flight.

Attitude Mode:

GPS position hold is not available in this mode. The flight controller provides basic attitude self-leveling and altitude hold, with flight angle limits. When the sticks are released, the helicopter returns to a level attitude but may drift due to momentum, wind, or other external factors.

6G Mode:

Similar to Attitude Mode but without altitude hold, 6G Mode provides flight angle limits and basic attitude self-leveling. GPS position hold is not available in this mode. Collective pitch is controlled directly by the throttle stick, so the pilot must continuously adjust collective pitch to maintain altitude while also correcting for drift. With the throttle stick centered, the helicopter descends rapidly.

Manual Mode:

Similar to a conventional gyro-controlled helicopter, Manual Mode provides only basic tail stabilization, with no flight angle limits. GPS position hold is not available in this mode. The pilot must continuously correct the helicopter's attitude, making this mode suitable for advanced pilots.

Acro Mode (3D Helicopters) :

Like GPS Mode, Smart Acro Mode uses GPS positioning for precise position and altitude hold. In this mode, move the stick to initiate a flip. When the stick input exceeds the preset flip threshold (80% by default), the helicopter begins to flip. Keep the stick fully deflected to perform continuous flips in any direction–forward, backward, left, or right.

When both sticks are released, the helicopter automatically recovers and holds its position and altitude. If the helicopter is close to an inverted attitude when the sticks are released, it will maintain an inverted hover. Fully deflect the stick again to perform another half flip.

 All Rights Reserved

Easy Inverted Mode (3D Helicopters):

When this mode is selected, press the L-GEAR button.The helicopter automatically flips into an inverted hover while maintaining its position and altitude. The controls differ from conventional gyro control and remain the same as upright flight in GPS Mode (push the throttle stick upward to climb). This mode assists with inverted flight, but it should only be used by pilots who understand 3D helicopteroperation and have practiced in a safe, open area.

Feature Introduction

Main Screens

The transmitter features five main screens: Attitude Indicator, Speedometer, System Health, Telemetry Data, and Flight Log. After powering on the transmitter, use the Up/Down buttons to switch between the screens.

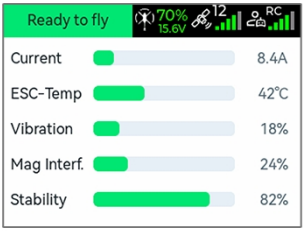
The status bar at the top displays the helicopter status (including the current flight mode, GPS status, error messages, and other status information, with different background colors indicating different statuses), helicopter battery voltage and estimated remaining capacity, satellite count, and transmitter signal strength, from left to right.



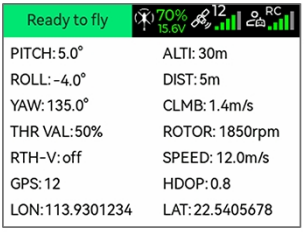
Attitude Indicator Screen



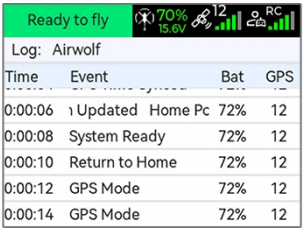
Speedometer Screen



System Health Screen



Telemetry Screen



Flight Log Screen

System Menu

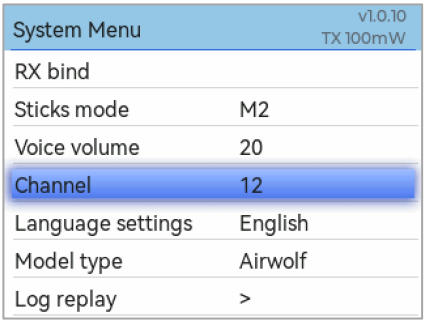
Short press the OK button to open the **System Menu**. This menu provides basic settings for the transmitter.

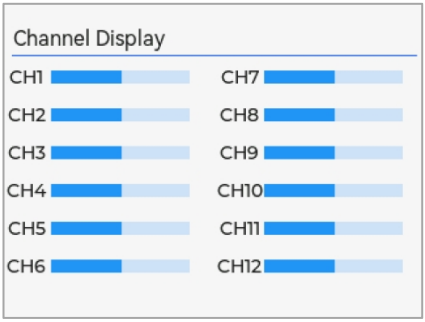
Voice Announcement

The transmitter supports voice announcements, providing real-time updates on helicopter battery level, flight mode, function and button/switch operations, sensor status, and other information. The volume can be adjusted under **Voice volume** in the **System Menu**. The announcement language automatically follows **Language settings** and supports Chinese, German, English, French, and Japanese.

Channel

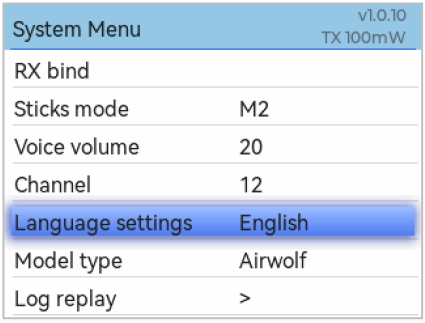
Select **Channel** and press the OK button to open the screen. The transmitter has 12 channels, each with a fixed assignment that cannot be changed. In the **Channel** menu, you can check whether each channel is functioning properly.

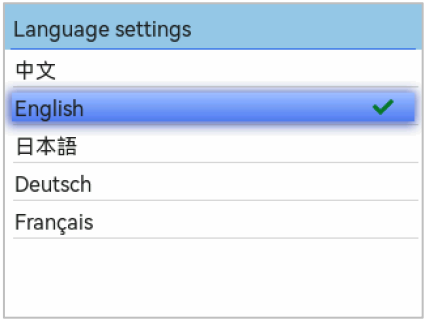




Language Settings

The transmitter supports five languages: Chinese, German, English, French, and Japanese. Select **Language settings** and press the OK button to open the selection screen. Use the Up/Down buttons to switch between languages, then press the OK button to confirm your selection.

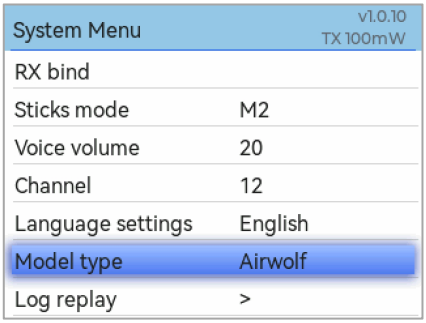


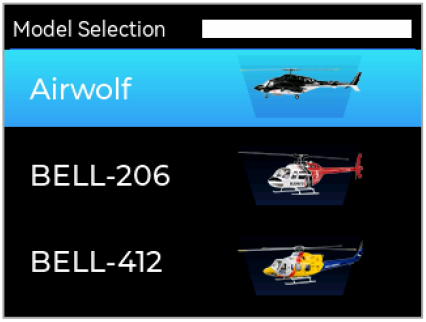


Model Type

This function is used to load the corresponding model parameters after installing the mechanics in a different fuselage. Select **Model type** and press the OK button to open the selection screen.

Power on the helicopter, use the Up/Down buttons to select the desired model, then press the OK button to confirm. The transmitter will write the corresponding model parameters to the flight controller. A progress bar appears in the top-right corner. Once the parameters have been successfully written, the system automatically returns to the main screen.Selecting thewrong model type may cause incorrect control behavior.

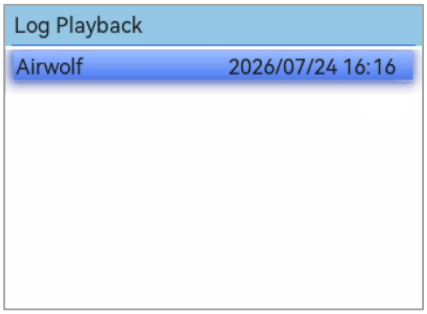


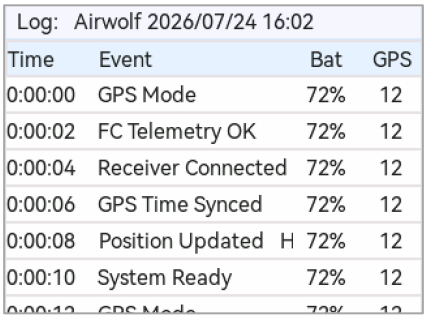


Log Replay

The transmitter can record and display approximately the 20 most recent flight logs, with up to 256 entries stored in each log. Select **Log replay** and press the OK button to open the selection screen. Use the Up/Down buttons to select a flight log, then press the OK button to view its details.

The flight log records function (button and switch) changes, helicopter status, error messages, and other information. It also records the battery level and the number of GPS satellites at the time of each entry. All entries are displayed in chronological order.





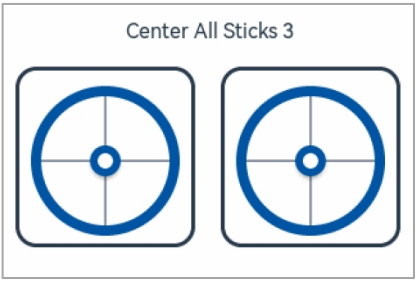
Sticks Adjust

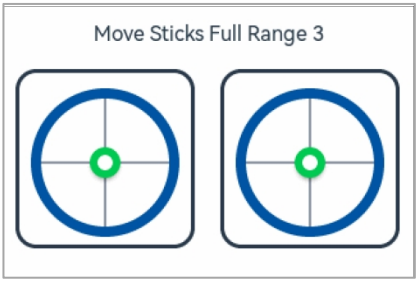
After extended use, if stick drift occurs, use this function to recalibrate the sticks. Select **Sticks adjust** and press the OK button to open the calibration screen:

- “Center All Sticks” appears at the top of the screen with a 3-second countdown. Do not move the sticks during the countdown while the transmitter calibrates the center positions.

 All Rights Reserved

- When the countdown ends, “Move Sticks Full Range” appears. Move the sticks to their full range, reaching all four corners (maximum and minimum positions), and rotate them around the full range three times.
- Release the sticks. A 3-second countdown begins. When the countdown ends, “Calibration Complete” appears.





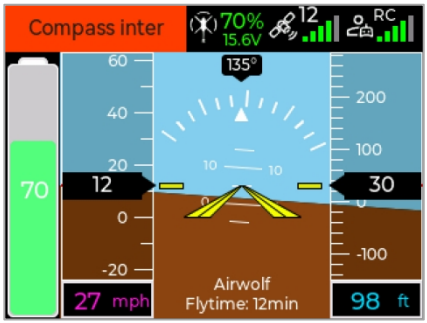
Helicopter Parameters

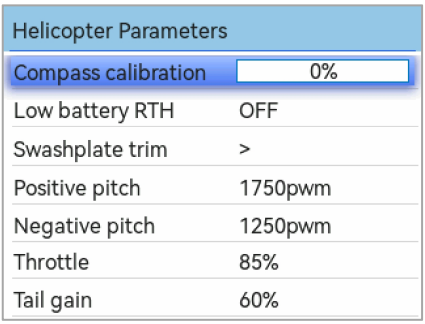
Long press the OK button for approximately 3 seconds to open the **Helicopter Parameters** menu. This menu provides basic helicopter setup and parameter settings.

Compass Calibration

If “Compass inter” appears in the upper-left corner of the main screen with a voice alert, or if both helicopter external LEDs flash red slowly, compass calibration is required.

Select **Compass calibration** and press the OK button to start calibration. A progress bar will appear. Rotate the helicopter through all six sides in sequence to calibrate the compass. When calibration is complete, the progress bar reaches 100% and the helicopter automatically restarts.

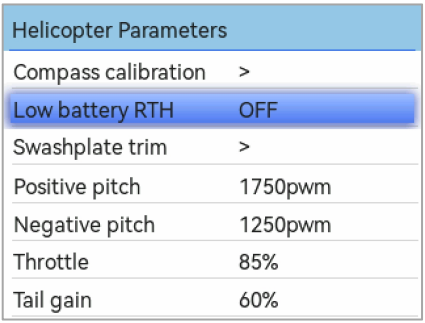


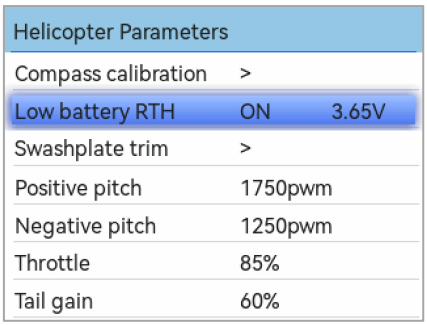


Low Battery RTH

Select **Low battery RTH** and press the OK button to turn the function on or off. When set to ON, press the OK button again to set the RTH voltage. Use the Up/Down buttons to adjust the

voltage, increasing or decreasing it by 0.01 V at a time. Press either the OK or Back button to save and confirm the setting.

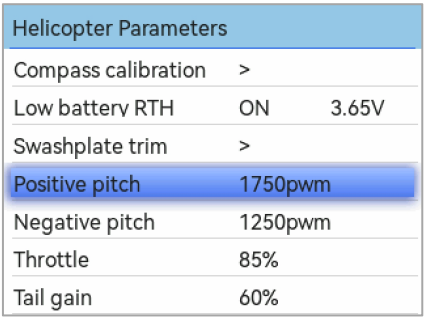


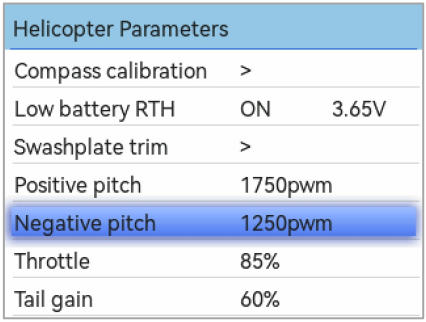


Positive/Negative Pitch

Select **Positive pitch** and press the OK button to start the adjustment. The helicopter will automatically move the blades to the maximum positive pitch angle. Use the Up/Down buttons to adjust the pitch value. Press either the OK or Back button to save the setting. The maximum positive pitch is 14° for scale helicopters and 13° for the FW450L.

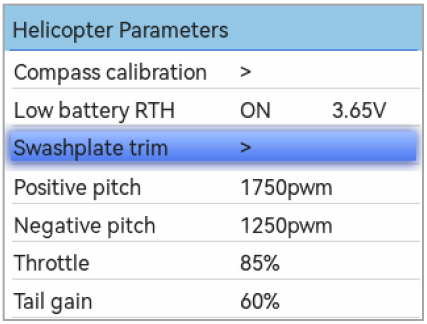
Select **Negative pitch** and press the OK button to start the adjustment. The helicopter will automatically move the blades to the maximum negative pitch angle. Use the Up/Down buttons to adjust the pitch value. Press either the OK or Back button to save and confirm the setting. The maximum negative pitch is −9° for scale helicopters and −13° for the FW450L.

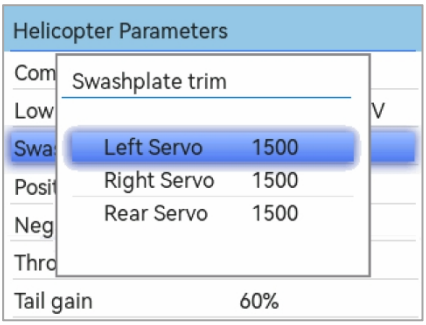




Swashplate Trim

Select **Swashplate trim** and press the OK button to open the adjustment screen. Use the Up/Down buttons to select the left, right, or rear servo, then press the OK button to start the adjustment. Use the Up/Down buttons to increase or decrease the servo angle. When the adjustment is complete, press either the OK or Back button to save and confirm the setting.



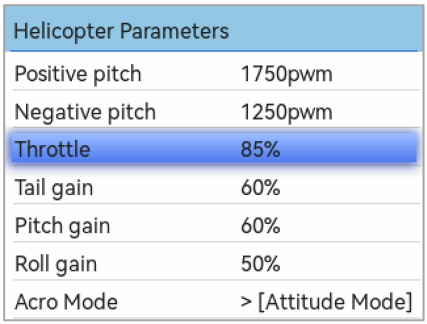


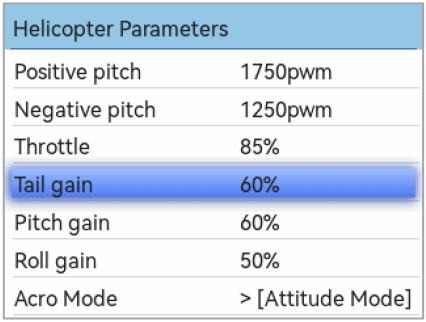
Throttle

Select **Throttle** and press the OK button to start the adjustment. Use the Up/Down buttons to adjust the throttle percentage. Press either the OK or Back button to save and confirm the setting. This value controls the motor speed.

Tail Gain

Select **Tail gain** and press the OK button to start the adjustment. Use the Up/Down buttons to adjust the tail gain percentage. Press either the OK or Back button to save and confirm the setting. When hovering, increase this value if the tail oscillates slowly; decrease it if the tail oscillates rapidly.



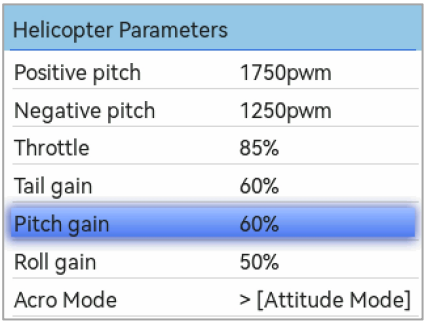


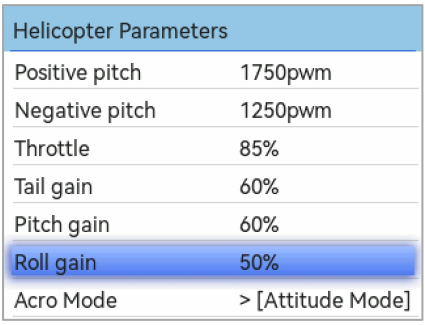
Pitch/Roll Gain

Select **Pitch gain** or **Roll gain** and press the OK button to start the adjustment. Use the Up/Down buttons to adjust the corresponding gain percentage. Press either the OK or Back button to save and confirm the setting.

If the helicopter oscillates forward and backward while hovering, adjust **Pitch gain** by 10% at a time. Once the helicopter becomes stable, adjust the value by 3% at a time.
If the helicopter oscillates left and right while hovering, adjust **Roll gain** by 10% at a time. Once the helicopter becomes stable, adjust the value by 3% at a time.

 All Rights Reserved

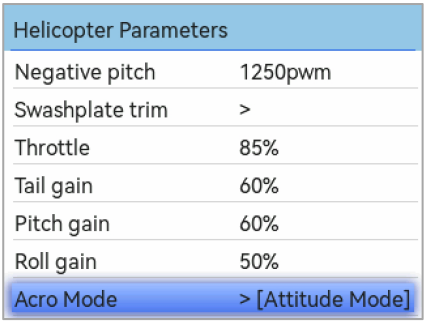


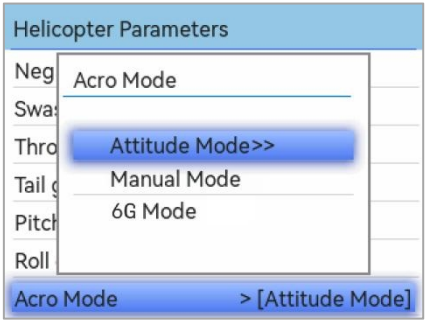


Acro Mode

Select **Acro Mode** and press the OK button to open the selection screen. Use the Up/Down buttons to select a flight mode. The selected mode will be assigned to the ACRO position .

For scale helicopters, the ACRO position can be assigned to Attitude Mode, Manual Mode, or 6G Mode. For 3D helicopters, it can be assigned to Attitude Mode, Manual Mode, 6G Mode, (Smart) Acro Mode, or Easy Inverted Mode.





- During pitch adjustment, the servos and rotor head may move automatically. Keep hands, tools,and loose objects away from the rotor head and linkage. Make sure the motor cannot start and theSTOP/P/RUN switch is set to STOP before making any adjustments.
- All adjustment and calibration procedures and precautions shall be subject to the flight controller or helicopter manual.

Trainer/Simulator Mode

Trainer/Learner Mode

- DO NOT unplug the AUX cable during flight. If the cable is disconnected, the screen will display “Abnormal disconnect!” and control will return to the learner transmitter.

- ONLY the learner transmitter should be bound to the helicopter. The trainer transmitter does not need to be bound. DO NOT power on any helicopter that was previously bound to the trainer transmitter.
- Power on both transmitters and make sure they are fully charged. On the trainer transmitter, set the Route/Trainer switch to OFF (Trainer Control Off). Plug the 3.5 mm AUX cable into the top 3.5 mm port on each transmitter. A pop-up will appear with three options: Trainer Mode, Learner Mode, and Simulator Mode, indicating that the connection is successful. A voice announcement will also be played. The transmitter that announces "Learner Mode" is the learner transmitter.
- Before entering Trainer Mode, set the Route/Trainer switch to OFF (Trainer Control Off). If "Please exit the trainer switch" appears on the screen, move the switch to the OFF position before proceeding.
- If you are using the trainer transmitter, select Trainer Mode and press the OK button to confirm. Once enabled, the trainer can take control using the Route/Trainer switch. Auto Routing is unavailable on the trainer transmitter in this mode.
- If you are using the learner transmitter, select Learner Mode and press the OK button to confirm. The learner transmitter communicates with the helicopter, while the trainer transmitter can take over control.
- Before takeoff, make sure the Mode switch, STOP/RUN button, and RTH button are in matching positions on both transmitters. It is recommended to set both Mode switches to GPS Mode, set both STOP/RUN buttons to STOP, and make sure RTH is off.
- After the learner takes off, the trainer should immediately set the STOP/RUN button to RUN. This prevents the switch positions from being mismatched when the trainer takes control, which could put the helicopter in a dangerous state.
- When the trainer needs to take control, move the Route/Trainer switch on the trainer transmitter to Trainer Control On. The transmitter will announce "Trainer Control." The helicopter will then operate in GPS Mode, as set on both transmitters before takeoff.
- To return control to the learner, first make sure the mode and function switch positions on the learner transmitter match those on the trainer transmitter. Then, move the Route/Trainer switch on the trainer transmitter to Trainer Control Off to release control. The transmitter will announce "Learner Control."
- If the switch positions do not match when control is transferred between the trainer and learner, the helicopter will temporarily retain the previous flight mode and a red warning will appear on the screen. Set the corresponding switches to the same positions on both transmitters. The warning will then disappear automatically and normal switch control will resume.
- After landing, both the trainer and the learner should set their STOP/RUN buttons to STOP immediately after landing (within 2 seconds). Make sure the motor has stopped.

 All Rights Reserved

- Power off the helicopter, then unplug the AUX cable. Trainer Mode will exit automatically, after which both transmitters can be powered off.

Simulator Mode

The port outputs a standard PPM signal. Connect the 3.5 mm AUX cable from a user-supplied USB dongle to the 3.5 mm trainer port on the top of the transmitter. The dongle can then be connected to a computer for use with RC flight simulator software.



Firmware Update

Download the Update Software

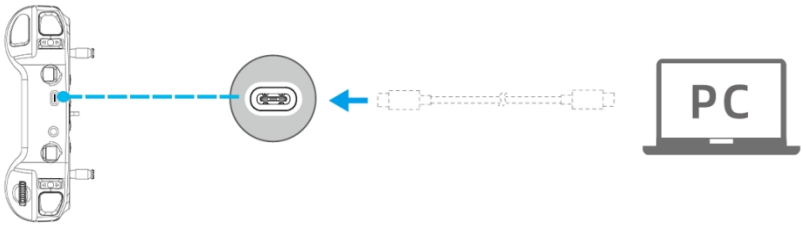
Visit the FLYWING official website: https://www.flywingrc.com. Go to Support > Software & App Center to download the software.

Using FY-RC02 RC Transmitter Updater

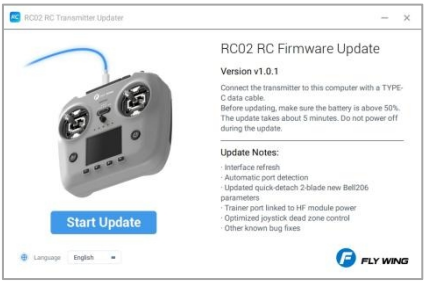
Power on the transmitter (battery > 50%) and connect a user-supplied USB-C data cable to the Update port (USB-C) on the top of the transmitter. Open the update software.

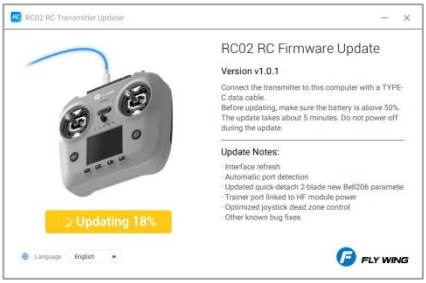
Once the software detects the transmitter, the gray **Connect USB** button will turn into a blue **Start Update** button. Check the firmware version, then click **Start Update**. The button will turn yellow and display the update progress.

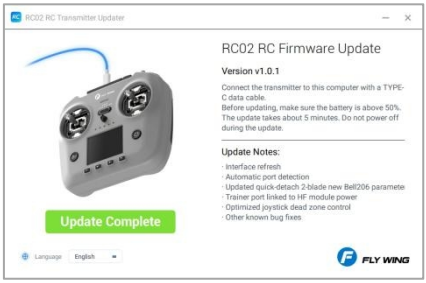
When the update is complete, the button will turn green and display "Update Complete." Disconnect the USB cable, then power on the transmitter.











- Before updating, make sure the transmitter battery level is above 50%.
- The update software supports Windows only. Windows 10 or later is recommended.
- The update software supports four languages: Chinese, English, Japanese, and German. The language can be changed in the lower-left corner.
- During the update, do not operate the transmitter, disconnect the power, or unplug the USB cable. Interrupting the update may damage the device or prevent it from powering on.

Appendix

Voice Announcement

Announcement List

Battery level 80%	Battery level 60%	Battery level 40%	Battery level 20%	Battery level 10%
GPS Mode	Attitude Mode	Acro Mode	Manual Mode	Return To Home
Inverted Mode	Easy Inverted Mode	Freedom Mode	6G Mode	Soft Mode
Standard Mode	Sport Mode	Circle Mode	Figure-8 Mode	Coordinated turn on

Coordinated turn off	Gear up	Gear down	Take off	Landing
Unlocked	Locked	Motor started	Motor stopped	Forced landing
Low battery warning	Critical battery warning	Home point updated	Auto returning	Return canceled
Release motor switch	Compass interference	Compass calibration started	Calibration success	Ready to fly
Weak remote signal	Remote controller low battery	Remote signal lost	Receiver connected	Telemetry recovered
Binding started	Binding completed	GPS signal weak	GPS lost	Maximum altitude arrived
Excessive vibration	Simulator Mode	Trainer Mode	Learner Mode	Trainer control
Learner control	Please exit the trainer switch	Do not touch sticks	Battery low, prepare for return	Low battery, auto returning
Lost GPS, please manually control	Spool-up complete	Please arm first, then start motor	Stick warning, calibration required	Select GPS Mode

Specifications

General	
Model Number	FY-RC02
Max. Operating Time	Approx. 7 hours
Operating Temperature	-10 ℃ ~ 40 ℃
Charging Temperature	5 ℃ ~ 40 ℃
Charging Time	Approx. 3 hours
Charging Type	Supports up to 5 V / 2 A charging
Battery Capacity	18.5 Wh (3.7 V 5000 mAh)
Battery Type	21700 Li-ion Battery
Chemical System	LiNiMnCoO2
Screen Size	2.8-inch TFT
Screen Resolution	320×240
Screen Brightness	350 nit
Dimensions	180mm×160mm×75mm
Weight	466g

 All Rights Reserved

Radio Frequency (RF)	
Number of Channels	12 Channels
Channel Range	1000 μs ~ 2000 μs
Operating Frequency	2.4 GHz
Transmit Power	Base Power: 10 ~ 150 mW (< 22 dBm)
Control Range	Approx. 2000 m (measured under ideal conditions; obstacles, electromagnetic interference, and other factors may reduce the range)
Communication Protocol	FWLRS（Bidirectional Serial Data Protocol）

 All Rights Reserved

FLY WING

This manual is subject to updates without prior notice.

Latest User Manual on the official FLYWING website

https://www.flywingrc.com

If you have any suggestions, you can leave us a message on the official website.

© FLYWING All Rights Reserved