

LapWiz RC Lap Timing System

Instruction Manual

SK-500048
V.127

Introduction

Thank you for choosing SkyRC LapWiz!

LapWiz is a smart RC lap timing and race management system designed for individual practice, friendly competitions, and organized club racing events.

Combining high-precision infrared (IR) lap detection, real-time race rankings, detailed performance analysis, and innovative Shadow Run training, LapWiz helps racers track their progress, improve consistency, and achieve faster lap times. With automatic transponder detection, easy driver management, and multiple timing modes, LapWiz makes it simple to get started—whether you're practicing alone, racing with friends, or hosting a club competition. Cloud connectivity and race result sharing make it easy to review and share your racing achievements.

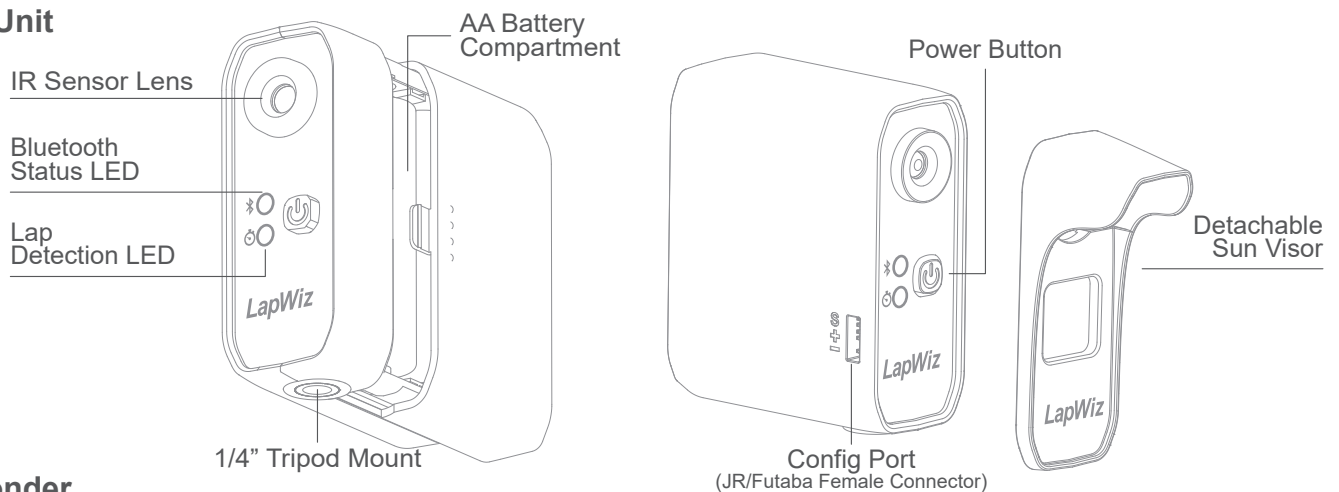
LapWiz is available in three kit versions: **Standard Kit, Mini-Z Kit, and Battery-Powered Kit. Package contents vary by kit.** Please refer to the "In the Box" section for details.

Key Features

1. Real-time Ranking
2. League Sync
3. Car & Driver Profiles
4. Club Leaderboards
5. Session Backup & Sync
6. Historical Performance Tracking
7. Race Result Sharing
8. Cloud Race Records

Meet LapWiz

Timing Unit



Transponder

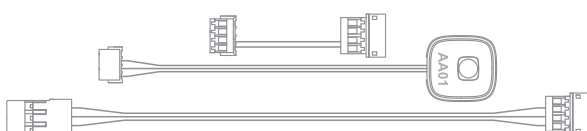
T01 Standard Transponder



T02 Enhanced Transponder (Optional, sold separately)



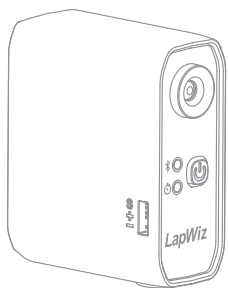
T03 Mini-Z Transponder



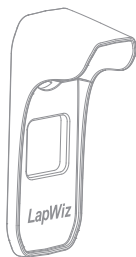
T04 Battery-Powered Transponder



In the Box



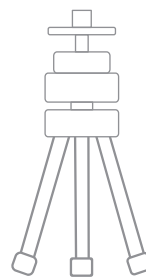
Timing Unit (Decoder) *1



Sun Visor *1



AA Batteries *2



Tripod *1



Quick Start Guide *1

Transponder *1



T01 Standard Transponder
(Standard Kit)



T03 Mini-Z Transponder
(Mini-Z Kit)



T04 Battery-Powered Transponder
(Battery-Powered Kit)

Get Started

1. Install the App

Download the SkyRC app from the App Store or Google Play.

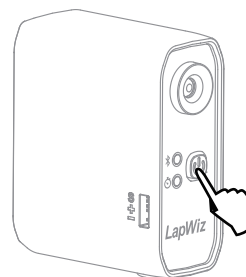


Scan to Download
the App



3. Power On

- * Briefly press the power button.
- * Status LED will indicate system readiness.



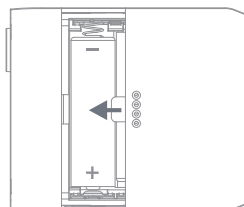
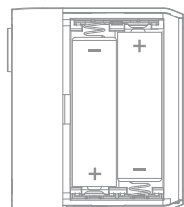
2. Installing or Replacing the Batteries

* **Open the Battery Cover:** Open the LapWiz battery cover in the direction shown.

* **Insert the Batteries:** Insert two AA batteries, observing the correct polarity and ensuring both are properly seated.

* **Close the Cover:** Reattach the battery cover.

Note: Always check the battery polarity when replacing batteries.



4. Connect

Open the app → Tap Device Connection
→ Select your LapWiz.

5. LED Status Explained

- * Blinking Blue: Not Connected
- * Solid Blue: Connected

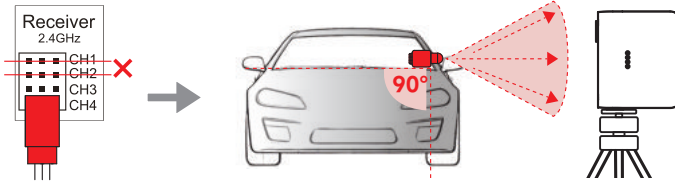
Transponder Mounting & Setup

1. T01/T02 Standard and Enhanced Transponders

(**⚠ Note:** Proper installation ensures the best detection range and the most reliable lap timing.)

Secure the transponder firmly to the vehicle. Connect the transponder to the receiver for power. Make sure the IR emitter faces the LapWiz decoder and remains unobstructed.

✓ CORRECT

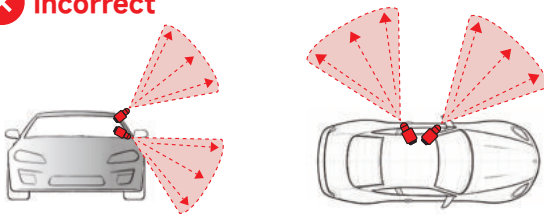


- IR emitter faces the LapWiz decoder.
- Level with the ground and perpendicular to the direction of travel.

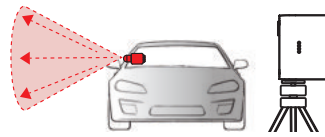


- Unobstructed IR path (outside the body shell, through a mounting hole, or behind a clear body shell).

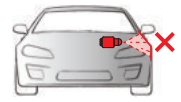
✗ Incorrect



- IR emitter tilted upward, downward, or at an angle.



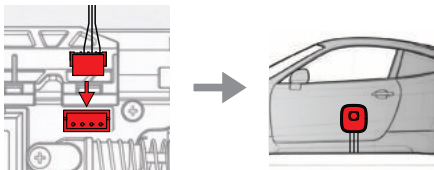
- IR emitter facing away from the LapWiz decoder.



- IR path blocked by the body shell or other components.

2. T03 Mini-Z Transponder Mounting

T03 can be powered via the Mini-Z Light Unit or I.C.S. Connector. Choose the connection that matches your chassis.

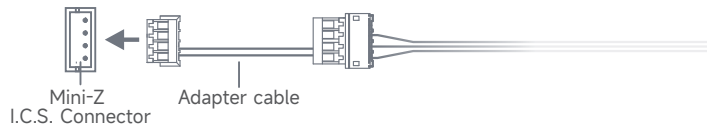


Method 1: Power via the I.C.S. Connector

1. Connect the adapter cable:
Connect the supplied adapter cable to the T03 Transponder.



2. Connect to the Mini-Z Receiver:
Plug the adapter cable into the I.C.S. port on the Mini-Z receiver.



Method 2: Power via Light Unit connection socket or Optional Light unit connector

⚠ Note: When powering the T03 Mini-Z Transponder from a Mini-Z receiver, turn the CH4 knob on the Mini-Z transmitter fully counterclockwise. Otherwise, the transponder may not operate correctly.

1. Connect the Transponder:
Connect the transponder to the Light Unit Connection Socket on the Mini-Z receiver.



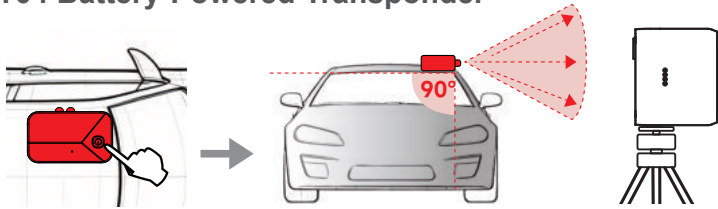
2. Adjust the CH4 Knob:

Turn the CH4 knob on the Mini-Z transmitter fully counterclockwise.

Tip: When the status LED flashes blue slowly, the transponder has been powered successfully and is ready for use.



3. T04 Battery-Powered Transponder



Button Controls

- Short Press:** Power on.
- Press and Hold for 2 Seconds:** Power off (red LED flashes rapidly twice).
- Press and Hold for 10 Seconds:** Restore factory settings (red LED flashes rapidly five times, then the device restarts).

LED Status Explained

Normal Operation	Blue LED flashes slowly
Low Battery Operation	Red LED flashes slowly
App Connected	Blue LED stays solid
Connected & Low Battery	Red LED stays solid
Firmware Update	Blue LED flashes rapidly
Charging	Red LED pulses
Fully Charged	Blue LED stays solid

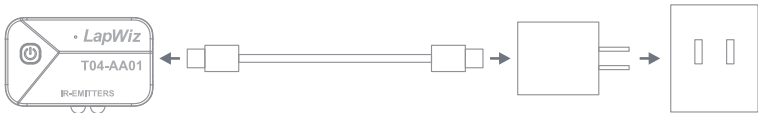
Note: When the battery is low, the red LED indicator takes priority over other status indications.

T04 Operating Modes

- Automatic Operation:** Automatically transmits IR signals containing the Transponder ID when powered on.
- Auto Sleep:** Enters sleep mode after 3 minutes of inactivity and automatically wakes when motion is detected.
- Auto Power-Off:** Automatically powers off after 6 hours in sleep mode (adjustable via the app).
- Transponder ID Setup:** SkyRC App → LapWiz Decoder Settings → Battery-Powered Transponder.
- Note:** A LapWiz decoder is required to detect the T04 transponder and record lap times.

Charging the T04 Battery-Powered Transponder

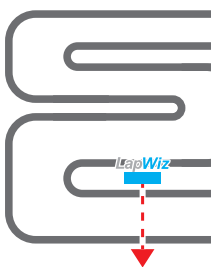
Connect the T04 Battery-Powered Transponder to a 5V USB power source using a USB-C cable.



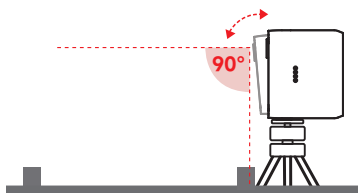
Timing Unit Positioning & Mounting

- Place at the start/finish line or a position that ensures reliable detection of all transponder signals;
- Use the stand to adjust height and angle;
- Avoid positioning the timing unit facing the sun, and keep a clear line of sight between the transponder and timing unit;

✓ Correct



- Place the decoder on the inside of a straight section of the track.
- Position it perpendicular to the track.



- Keep the receiver window level or tilted slightly downward.

✗ Incorrect

- Outside of a straight section.

- On a corner.

- Receiver window facing up or down.
- Receiver window facing direct sunlight.
- Avoid direct sunlight.

Pre-Race Checklist

- Transponder correctly oriented toward the decoder.
- Transponder powered on.
- Perform a test pass to confirm lap detection.

* Each vehicle must use a unique Transponder ID.

✓ Correct (Unique IDs)

Car ID 05

Join

Car ID 06

Join

✗ Incorrect (Duplicate IDs)

Car ID 05

Join

Car ID 05

Join

How to Customize a Transponder ID

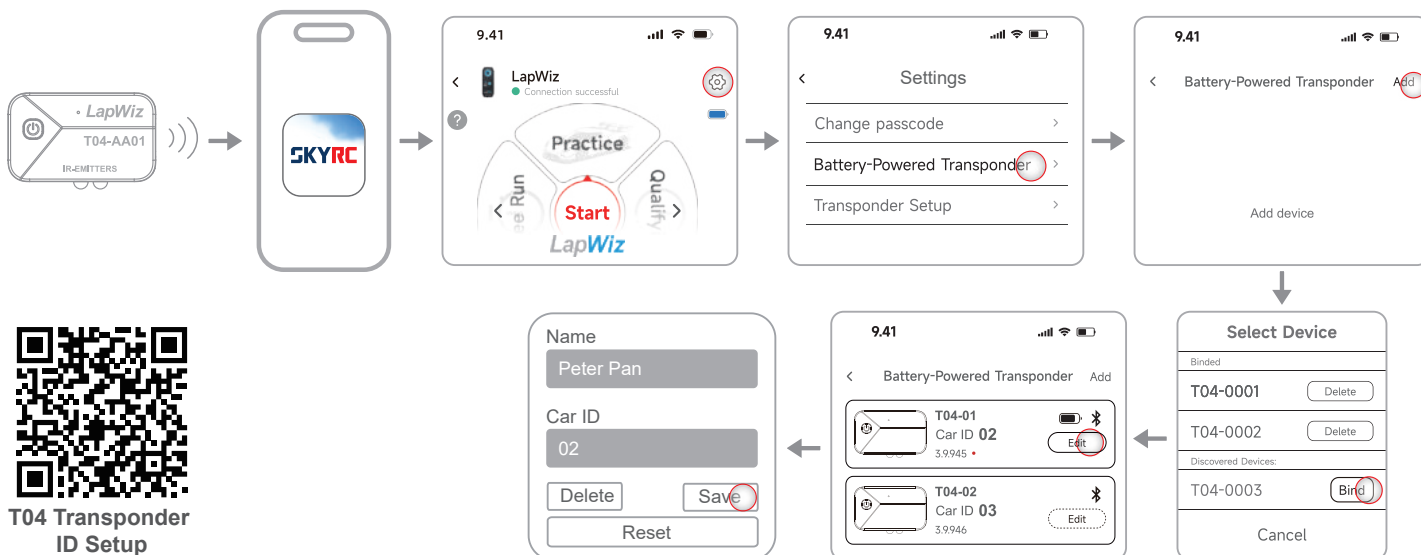
Each transponder comes with a factory-set Transponder ID that matches the last two digits of the 4-character serial number printed on its case. For example, if the serial number is AB12, the default Transponder ID is 12. Changing the Transponder ID is optional. You only need to change it if another car in the same session uses the same ID or if you prefer a different number.

Note: Each car must have a unique Transponder ID (01–99) when multiple cars are participating in the same session. Changing the Transponder ID does not change the serial number printed on the transponder. To change the Transponder ID, follow the instructions below:

• **T01 / T02 / T03:** Connect the transponder to the LapWiz decoder's Config Port.



• **T04:** Pair and connect the transponder wirelessly via the app.



Adding Drivers and Starting a Session

1. Connect to LapWiz

Turn on the LapWiz timing unit and open the SkyRC app. Connect to your LapWiz device via Bluetooth.

2. Driver Setup

You can choose Quick Start without adding any drivers, or manually add one or more drivers before starting a session.

Option A: Quick Start (No Driver Setup Required)

Quick Start allows you to begin timing without adding or selecting drivers. LapWiz automatically detects each car's Transponder ID and records its lap times whenever the car passes the timing unit.

Simply select Quick Start to proceed without driver setup.

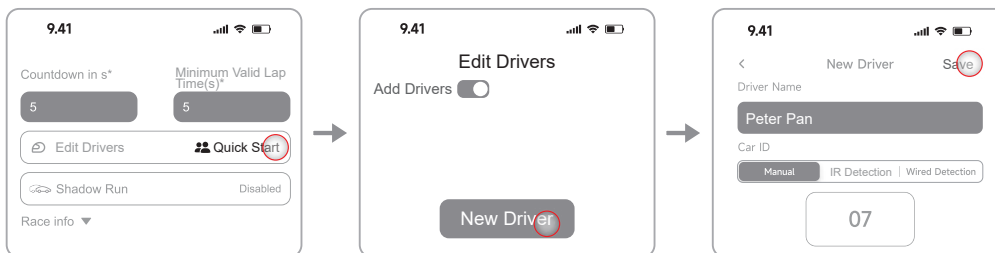
Option B: Add Drivers Manually

To add one or more drivers:

- Tap Edit Drivers and enable Add Drivers.
- Tap New Driver.
- Enter the driver's name and Transponder ID.
- For T01/T02/T03, enter the ID manually or use wired detection by following the on-screen instructions.
- For T04, use its existing Transponder ID. Refer to the previous section only if you need to change it.
- Tap Save to save the driver profile.

Select the drivers you want to include in the session.

Note: Each car must have a unique Transponder ID to ensure accurate identification and lap timing.



3. Select a Timing Mode and Start Timing

Select your preferred timing mode (Practice, Qualifying, Race, or Free Run) and configure the session settings.

Tap the Start icon to begin the session.



Timing Modes & Settings

Practice :

Timing starts automatically when the first car crosses the timing line. Each car runs its own independent timed practice session (5 minutes by default).

Qualifying :

Timing starts after the countdown. Each car is given an independent qualifying session (5 minutes by default), with ranking based on fastest lap time.

Race :

Timing starts after the countdown. All cars share the same race timer. When the race time ends (5 minutes by default), the race finishes after all cars complete their current lap.

Free Run :

Unlimited open-session driving with multi-car support and no ranking. The system remains active continuously (up to 16 hours, or automatically shuts down after 30 minutes of Bluetooth disconnection) until manually stopped. Multiple cars can be recorded simultaneously, with automatic session splitting support. For example, if a car runs for 5 minutes, stops for maintenance for 30 minutes, then runs again for another 5 minutes, the system automatically creates two separate valid sessions while excluding inactive maintenance time.

Race Setup :

Create a race and optionally share a QR code for racers to join.

Shadow Run Explained :

Shadow Run is a training mode that lets you race against your previous best lap or a saved session in real time.

Perfect for testing setup changes such as tires, camber, toe, gearing, and driving lines, Shadow Run helps you tune smarter, drive more consistently, and chase faster laps.

Minimum Valid Lap Time :

Set the minimum valid lap time to prevent false lap recordings caused by repeated IR detections or unintended crossings of the timing line. Any lap time shorter than the specified minimum will be ignored.

Tip: Set this value slightly below the fastest expected lap time for your track to avoid excluding valid laps.

Display Race Results on a Large TV

Display live race results on a large TV or monitor by mirroring your smartphone screen using:

- **AirPlay / Apple TV (iOS devices)**
- **Android Screen Casting (Android devices)**

Perfect for RC clubs, organized races, and trackside events. By connecting LapWiz to a large screen, drivers and spectators can follow live lap times, race rankings, and results throughout the event.

Button & Status LEDs

	Action	Function
Power Button	Short Press	Power On
	Press and Hold for 2 Seconds	Power Off
	Press and Hold for 10 Seconds	Factory Reset
Bluetooth Status LED	Solid Blue	Bluetooth Connected
	Blue Blinking	Bluetooth Not Connected
	Rapid Blue Flashing	Upgrading
Lap Detection LED	White Blinking	Valid IR Signal Detected

Specifications

	LapWiz (Timing Decoder)		
Model	RT004		
Power Supply	2 × AA Batteries		
Communication	Bluetooth		
Timing Resolution	0.01 s		
Bluetooth Range	Over 30 m (in open, unobstructed environments)		
Dimensions	55 x 26 x 65 mm		
Weight	45 g		
	T01 Standard Transponder	T02 Enhanced Transponder (Dual IR Emitters)	T03 Mini-Z Transponder
Connector	JR/Futaba	JR/Futaba	JST-ZH 1.5 mm 4-Pin
Input Voltage	DC 3–15 V	DC 3–15 V	DC 3–15 V
IR Transmission Range	3–10 m*	4–10 m*	5 m*
Suitable for	Indoor and Outdoor Tracks	Indoor and Outdoor Tracks	Indoor Tracks
Transponder Module Dimensions	20 × 17 × 7 mm	20 × 17 × 7 mm	15 × 14 × 6 mm
Cable Length	285 mm	285 mm	72 mm
Weight	4.5 g	6 g	1.5 g
Programming Cable Length	-	-	120 mm
Adapter Cable Length	-	-	30 mm (Compatible with Mini-Z ICS Port)
	T04 Battery-Powered Transponder		
Charging Port	USB-C		
Input Voltage	DC 5 V		
Battery Capacity	140 mAh		
Runtime	Over 12 hours		
IR Transmission Range	4–10 m*		
Track Compatibility	Indoor and Outdoor		
Dimensions	30.8 × 18.5 × 11 mm		
Weight	6.5 g		

* Test data was obtained under standard indoor conditions. Actual detection range may vary with lighting conditions, ambient infrared interference, transponder placement, and vehicle speed. For optimal outdoor performance, avoid direct sunlight on the LapWiz IR receiver and use the sun visor when needed for enhanced detection reliability.

CONFORMITY DECLARATION

LapWiz satisfies all relevant and mandatory CE directives and FCC Part 15 Subpart B.

EN-55032	Electromagnetic compatibility of multimedia equipment - Emission requirements	Conform
EN-55035	Electromagnetic compatibility of multimedia equipment - Immunity requirements	Conform
EN 61000-3-2	Electromagnetic compatibility (EMC) – Part 3-2: – Limits for harmonic current emissions (equipment input current up to and including 16 A per phase)	Conform
EN 61000-3-3	Electromagnetic compatibility (EMC) - Part 3-3: Limitation of voltage supply systems for equipment with rated current ≤ 16 A.	Conform
EN 62368-1	Audio/Video, Information and communication technology equipment part 1: Safety requirement	Conform
EN 62479	Assessment of the compliance of low power electronic and electrical equipment with the basic restrictions related to human exposure to electromagnetic fields (10 MHz to 300 GHz)	Conform
EN 50663	Generic standard for assessment of low power electronic and electrical equipment related to human exposure restrictions for electromagnetic fields (10 MHz - 300 GHz)	Conform
EN 301489-1 EN 301489-17	Electromagnetic compatibility and Radio spectrum Matters (ERM); ElectroMagnetic Compatibility (EMC) standard for radio equipment and services; Part 1: Common technical requirements. Part 17: Specific conditions for Broadband Data Transmission Systems.	Conform
EN 300328	Wideband transmission systems;Data transmission equipment operating in the 2,4 GHz band; Harmonised Standard for access to radio spectrum	Conform
FCC Part Subpart 15B	Title 47 Telecommunication PART 15 - RADIO FREQUENCY DEVICES Subpart B - Unintentional Radiators	Conform

Warranty and Service

Liability Exclusion

The device is designed and approved exclusively for the scenarios stated in this Instruction Manual. SkyRC accepts no liability of any kind if the device is used for any purpose other than that stated. We are unable to ensure that you follow the instructions supplied with the power supply, and we have no control over the methods you employ for using, operating, and maintaining the device. For this reason, we are obliged to deny all liability for loss, damage, or costs that are incurred due to the incompetent or incorrect use and operation of our products, or which are connected with such operation in any way. Unless otherwise prescribed by law, our obligation to pay compensation, regardless of the legal argument employed, is limited to the invoice value of those SkyRC products which were immediately and directly involved in the event in which the damage occurred.

Warranty and Service

We guarantee this product to be free of manufacturing and assembly defects for a period of one year from the time of purchase. The warranty only applies to material or operational defects, which are present at the time of purchase. During that period, we will repair or replace free of charge for products deemed defective due to those causes. This warranty is not valid for any damage or subsequent damage arising as a result of misuse, modification, or as a result of failure to observe the procedures outlined in this manual.

Note:

1. The warranty service is valid in China only.
2. If you need warranty service overseas, please contact your dealer in the first instance, who is responsible for processing guarantee claims overseas. Due to high shipping costs, and complicated customs clearance procedures to send back to China, please understand that SkyRC can't provide warranty service to overseas end users directly.
3. If you have any questions which are not mentioned in the manual, please feel free to send an email to support@skyrc.com.



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please refer to our website for the latest version!

<https://www.skyrc.com>

SKYRC

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