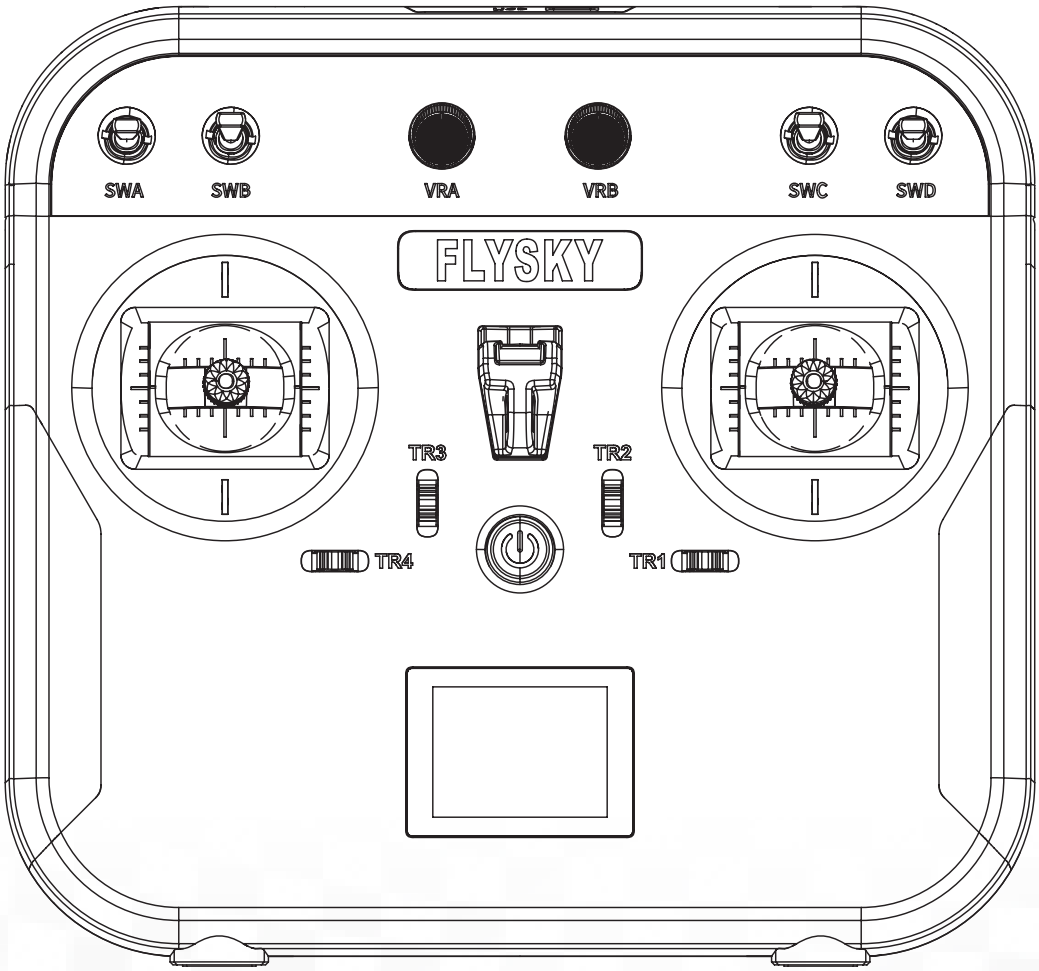
FS-L12A

USER MANUAL

Digital Proportional Radio Control System

FLYSKY

2.4GHz AFHDS 2A



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15+

WARNING:

This product is only for 15 years old or above.

Thank you for purchasing our products.

Read the manual carefully to ensure your personal safety as well as the safety of your equipment.

If you encounter any problems during using, please refer to this manual first. If the problem is still not resolved, please contact the local dealer directly or contact the customer service staff via the website below:

www.flysky-cn.com

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1.Safety

1.1 Safety Symbols

Pay close attention to the following symbols and their meanings. Failure to follow these warnings could cause damage, injury or death.

⚠ Danger	• Not following these instructions may lead to serious injuries or death.
⚠ Warning	• Not following these instructions may lead to major injuries.
⚠ Caution	• Not following these instructions may lead to minor injuries.

1.2 Safety Guide

Prohibited

- **Do not use the product at night or in bad weather like rain or thunderstorm. It can cause erratic operation or loss of control.**
- **Do not use the product when visibility is limited.**
- **Do not use the product on rain or snow days. Any exposure to moisture (water or snow) may cause erratic operation or loss of control.**
- **Interference may cause loss of control. To ensure the safety of you and others, do not operate in the following places:**
  - Near any site where other radio control activity may occur
  - Near power lines or communication broadcasting antennas
  - Near people or roads
  - On any body of water when passenger boats are present
- **Do not use this product when you are tired, uncomfortable, or under the influence of alcohol or drugs. Doing so may cause serious injury to yourself or others.**
- **The 2.4GHz radio band is limited to line of sight. Always keep your model in sight as a large object can block the RF signal and lead to loss of control.**
- **Do not touch any part of the model that may generate heat during operation, or immediately after use. The engine, motor or speed control, may be very hot and can cause serious burns.**

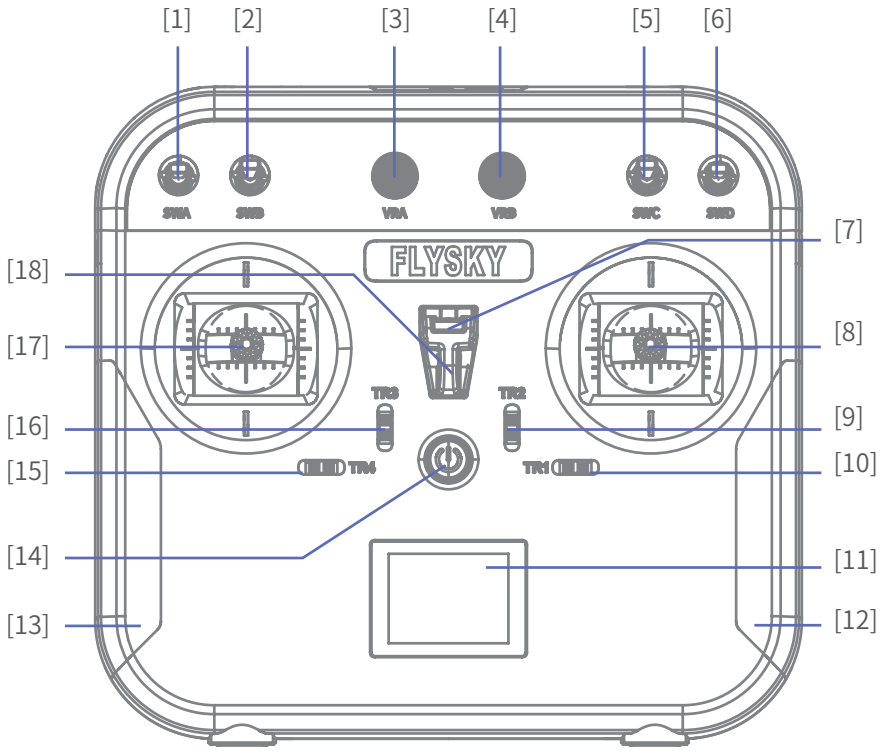
Mandatory

- **Misuse of this product may lead to serious injury or death. To ensure the safety of you and your equipment, read this manual and follow the instructions.**
- **Make sure the product is properly installed in your model. Failure to do so may result in serious injury.**
- **Make sure to disconnect the receiver battery before turning off the transmitter. Failure to do so may lead to unintended operation and cause an accident.**
- **Ensure that all servos operate in the correct direction. If not, adjust the direction first.**
- **Make sure the model stays within the systems maximum range to prevent loss of control.**

2.Introduction

The FS-L12A transmitter adopts the AFHDS 2A protocol (Automatic Frequency Hopping Digital System Second Generation), capable of outputting 12 channels and compatible with RC engineering vehicles.

2.1 Transmitter Overview



[1] SWA 2-Position Switch (CH5)

[2] SWB 3-Position Switch (CH6)

[3] VRA Knob (CH9)

[4] VRB Knob (CH10)

[5] SWC 3-Position Switch (CH7)

[6] SWD 2-Position Switch （CH8）

[7] A Hole for Fixing the Cell Phone Holder

[8] Self-Centering Right Stick（CH1 ⇄ /CH2 ↕）

[9] TR2 (CH2 Trim)

[10] TR1 (CH1 Trim)

[11] LCD Display Screen

[12] Right Grip

[13] Left Grip

[14] ⏻ (Power Switch)

[15] TR4 (CH4 Trim)

[16] TR3 (CH3 Trim)

[17] Self-Centering Left Stick (CH4 ⇄ /CH3 ↕)

[18] Neck Strap Hook

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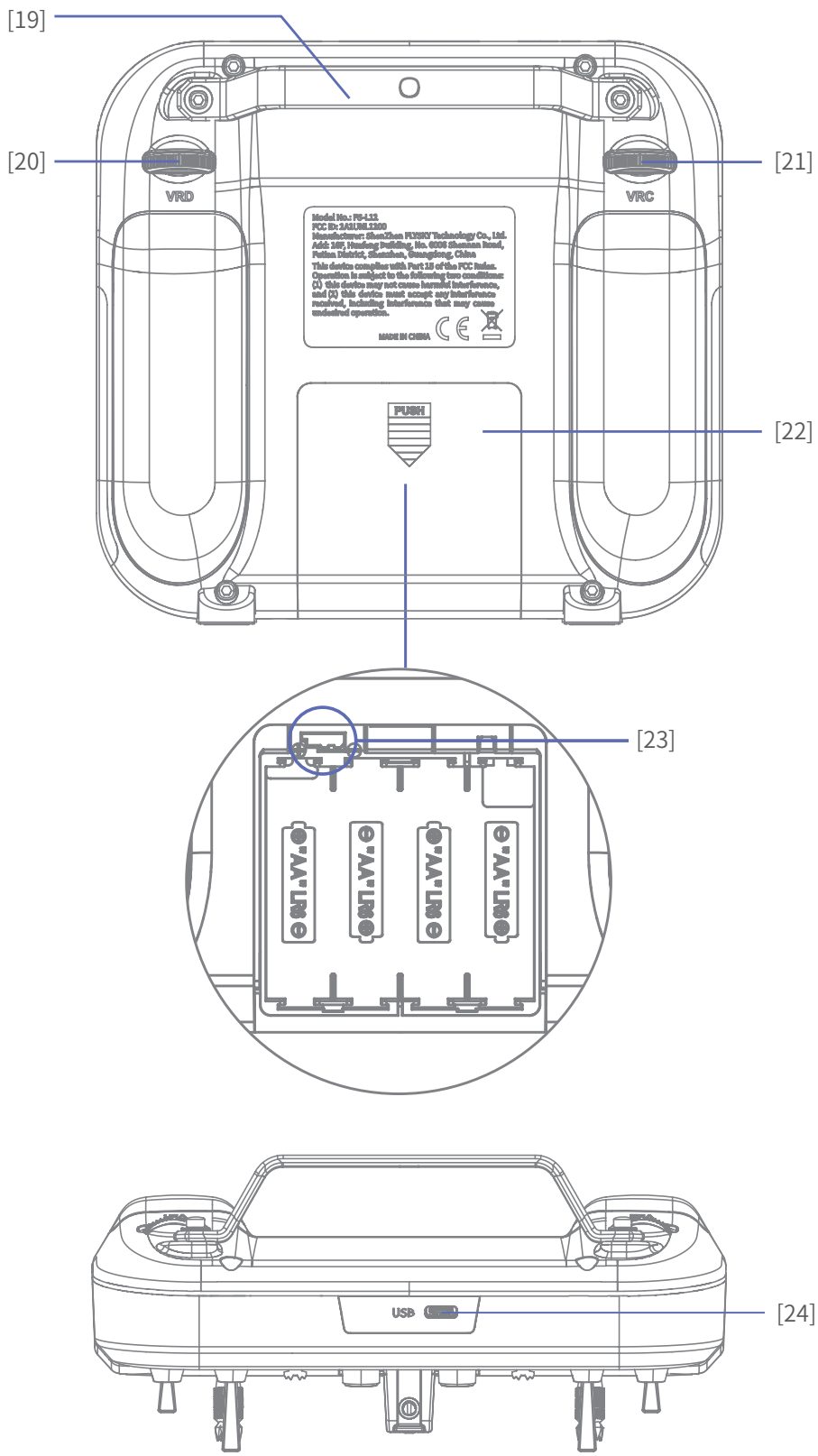

[19] Carry Handle
[20] VRD Self-Centering Dail (CH12)
[21] VRC Self-Centering Dail (CH11)
[22] Battery Compartment
[23] Battery Interface (JST or Dupont)
[24] USB Type-C Port

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3.Getting Started

Before operation, install the battery and connect the system as instructed below.

3.1 Transmitter Battery Installation

⚠ Danger	• **Only use specified battery.**
⚠ Danger	• **Do not open, disassemble, or attempt to repair the battery.**
⚠ Danger	• **Do not crush/puncture the battery, or short the external contacts.**
⚠ Danger	• **Do not expose to excessive heat or liquids.**
⚠ Danger	• **Do not drop the battery or expose to strong shocks or vibrations.**
⚠ Danger	• **Always store the battery in a cool, dry place.**
⚠ Danger	• **Do not use the battery if damaged.**

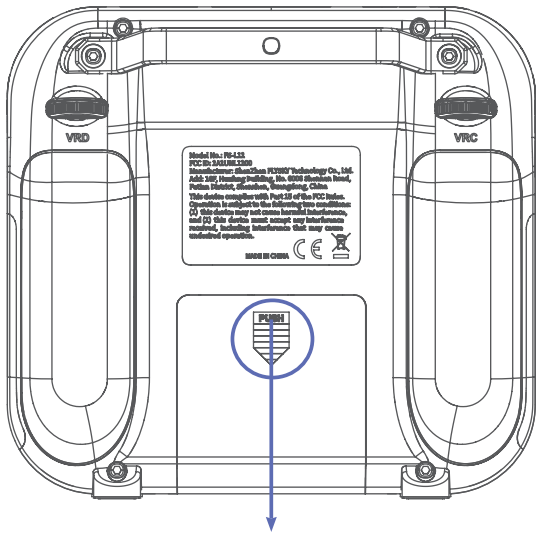
Battery types used: AA batteries or 2S LiPo.

Installing the AA Battery

Follow the steps below to install the AA batteries:

1. Open the battery compartment cover as illustrated.
2. Insert 4 fully-charged AA batteries into the compartment. Make sure that the batteries are well set according to the polarities marked on the battery compartment.
3. Replace the battery compartment cover.

Installing the LiPo Battery



Press and slide the cover as illusrtated. Then remove the cover.

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Supports LiPo batteries with JST or Dupont interfaces.

Follow the steps below to install it:

1. Open the battery compartment cover.
2. Insert 2S LiPo battery into the compartment.
3. Plug the cable of LiPo battery into the Battery Interface.
4. Replace the battery compartment cover. Be careful not to pinch the cable.

3.2 Transmitter Antenna

The transmitter features a built-in antenna that automatically operates when the transmitter starts working, requiring no additional actions.

3.3 Receiver and Servo Installation

Make sure that the receiver is mounted in an appropriate location within the model, to ensure a stable signal, maximum range and to mitigate external interference, follow these guidelines:

Pay attention to the following when installing the receiver:

1. Make sure the receiver is not installed near motors or sources of electrical noise.
2. Keep the receiver's antenna away from conductive materials such as carbon or metal. To ensure normal function, make sure there is a gap of at least 1cm between the antenna and the conductive material.

⚠ **Caution**	• **To prevent damage do not power on the receiver during installation.**

4.Instructions

After setting up, follow the instructions below to operate the system.

4.1 Powering On

Follow the steps below to turn on the transmitter:

1. Check to make sure that the batteries are fully charged and installed correctly.
2. Press and hold ⏻ for more than 1.5 seconds,the buzzer will beep once, and the LCD display screen will light up, indicating that the transmitter has been turned on.

Note: For safety, always power on the transmitter before the receiver.

⚠ **Warning**	• **Operate with caution in order to avoid damage or injury.**

⚠ **Warning**	• **For your safety, please turn the transmitter switch and throttle to the safe position.**

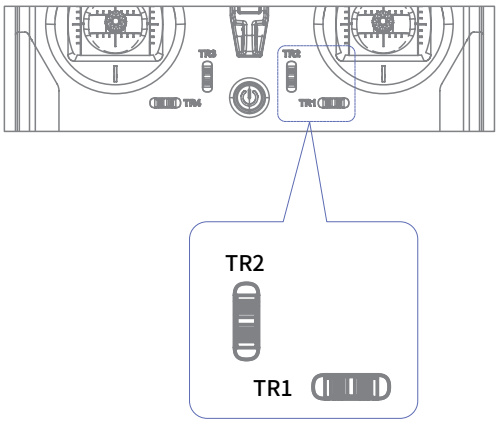
4.2 Setting Status

Follow the step below to put the transmitter into the setting status to configure the relevant functions:

Toggle any TR key (TR1~TR4) and simultaneously press and hold ⏻ for 1.5 seconds to turn on the transmitter. Once the transmitter is powered on, it will enter the setting status.

In the setting status:
Push TR2 upwards to select the previous option;
Push TR2 downwards to select the next option.
Push TR1 rightwards to confirm;
Push TR1 leftwards to return.

After the relevant functions have been configured, you can restart the transmitter or exit the setting status by using the Exit function, After that. you can use the transmitter.



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4.3 Binding

The FS-L12A transmitter only supports two-way binding. Taking the FS-iA10B receiver as an example, the binding steps are as follows:

1. Select Bind (default selected), then push TR1 rightwards to enter the next level interface.
2. Select Start (default selected), push TR1 rightwards to put the transmitter into the binding mode.
3. First, connect the binding cable to the B/VCC connector on the receiver, then connect the power cable to any other connector on the receiver. The receiver's LED flashes rapidly, indicating that the receiver has entered the binding mode.
4. Once the receiver's LED is solid on, indicating the binding is successful. At this point, remove the binding cable and the power cable, then reconnect the power cable to the B/VCC connector.
5. Check whether the transmitter and the receiver are working properly. If you need to rebind, repeat the steps above.

- **Different receivers have different binding methods. For specific binding methods, please visit the FLYSKY official website to consult the receiver's manual or other related materials.**

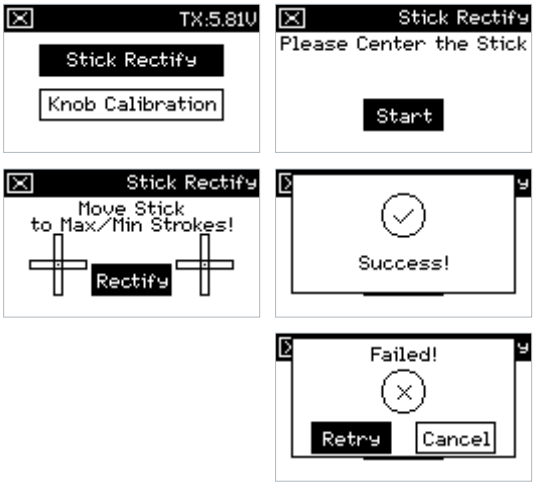
4.4 Stick Calibration

Use this function to correct for the mechanical deviation of the sticks or dials (VRC/VRD), for example, deviation occurred in the self-centering or maximum/minimum travel, the steps to calibrate the sticks:

1. First, put the transmitter into the setting status, then push TR2 downwards to select Stick Rectify, and then push TR1 rightwards to enter the stick calibration function interface.
2. Push TR1 rightwards to proceed to the next step; according to the on-screen prompts, move the left and right sticks to their maximum and minimum travel, then push TR1 rightwards and a popup prompt will appear:

   If the calibration is successful, push TR1 rightwards to exit.

   If the calibration fails, select Retry and push TR1 rightwards to start the calibration again. Or push TR2 upwards or downwards to select Cancel, and push TR1 rightwards to exit the calibration function.

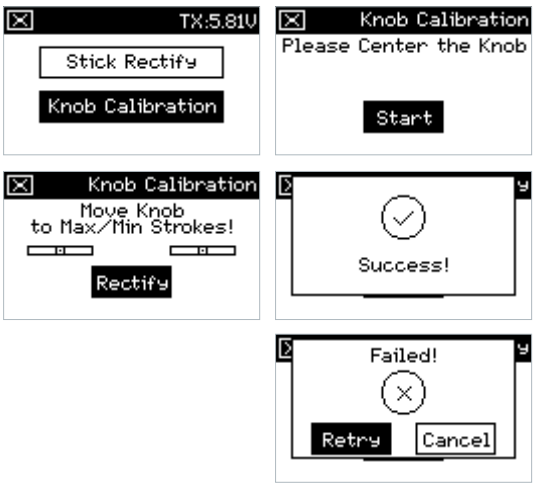


The steps to calibrate the dials:

1. Enter Stick Rectify > Knob Calibration. Push TR1 rightwards to enter the knob calibration function interface.
2. Push TR1 rightwards again to proceed to the next step. Follow the screen prompts to adjust the VRC and VRD dials to their maximum and minimum travel, then push TR1 rightwards. A pop-up window will appear:

   If the calibration is successful, push TR1 rightwards to exit .

   If the calibration fails, select Retry and then push TR1 rightwards to retry. Or push TR2 up/down to select Cancel, then push TR1 rightwards to exit.



4.5 Powering Off

Follow the steps below to turn off the system:

1. Turn off the receiver first.
2. Press and hold ⏻ for more than 1.5 seconds, the buzzer will beep once, and the LCD display screen will go out, indicating that the transmitter has been turned off.

⚠ **Danger**	• **Make sure to disconnect the receiver power before turning off the transmitter. Failure to do so may lead to damage or serious injury.**

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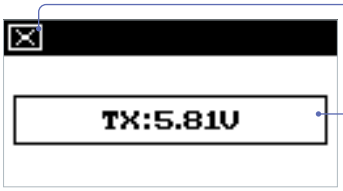
5.System Interface

Introduction to the transmitter interface and function interface in setting status.

Transmitter Interface



Status Bar: If the receiver is bound, the signal strength will display here.

Display TX Voltage

When the voltage of the corresponding battery is too low (AA battery: <4.2V; LiPo battery: <7.2V), the voltage value will flash as an alarm.

Function Interface in Setting Status

6. System Function

This section mainly introduces the operation of various system functions.

6.1 Channel Description

The transmitter outputs a total of 12 channels, and the channel control assignments and trim controls are as follows:

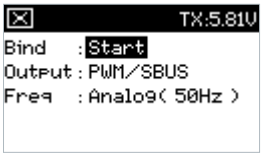
Channel	Channel Controls Assigned	Trim Controls Assigned (Trim adjustment range is from -120us to 120us, with a step of 4us. And the default trim value is 0.)
CH1	Right Stick (Left-Right)	TR1
CH2	Right Stick (Up-Down)	TR2
CH3	Left Stick (Up-Down)	TR3
CH4	Left Stick (Left-Right)	TR4
CH5	SWA 2-Position Switch	/
CH6	SWB 3-Position Switch	/
CH7	SWC 3-Position Switch	/
CH8	SWD 2-Position Switch	/
CH9	VRA Knob	/
CH10	VRB Knob	/
CH11	VRC Dial	/
CH12	VRD Dial	/

In non-setting status, the transmitter's controls can be used to adjust channel output or make trim adjustments. When the transmitter is in the setting status, the controls can still manage channels, while the trim controls are used for function settings.

If you need to set the relevant functions, switch the transmitter to the setting status according to 4.3 Setting Status, and then proceed with the following related settings.

6.2 Bind(Output Mode/Frequency)

In this interface, you can set Bind, Output (output mode) and Freq(frequency).



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6.2.1 Binding

For detailed instructions on binding, please refer to 4.3 Binding.

6.2.2 Output Mode

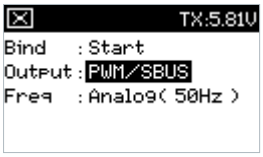
Set the type of output signal for the receiver connectors.

Two combined output options are available, including four output modes, namely PWM/S.BUS, PPM/i-BUS, PWM/i-BUS and PPM/S.BUS. Choose according to your needs. Once the FS-L12A transmitter and FS-iA10B receiver have bound, the output signals of the connectors are as follow:

- When the Output is set to PWM/S.BUS, interfaces CH1-CH12 output PWM signals, and the SERVO interface outputs S.BUS signals.
- When the Output is set to PPM/i-BUS, the CH1 interface outputs PPM signals, other channel interfaces have no output, and the SERVO interface outputs i.BUS signals.
- When the Output is set to PWM/i-BUS, interfaces CH1-CH12 output PWM signals, and the SERVO interface outputs i.BUS signals.
- When the Output is set to PPM/S.BUS, the CH1 interface outputs PPM signals, other channel interfaces have no output, and the SERVO interface outputs S.BUS signals.

Setup:

1. Select Bind, then push TR1 rightwards to enter the next level interface.
2. Push TR2 downwards or upwards to select Output, push TR1 rightwards to confirm, and you can push rightwards continuously to cycle through options.
3. Push TR1 leftwards to return to the previous level interface.

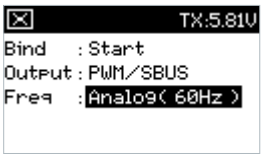


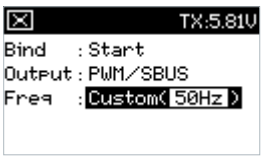
6.2.3 Frequency

Used to set the servo frequency. Choose the appropriate servo frequency based on the type of servo. Options includes Digital (380Hz), Analog (60Hz), and Other (50Hz). Other (50Hz) range is from 50 to 400.

Setup:

1. Select Bind, then push TR1 rightwards to enter the next level interface.
2. Push TR2 downwards or upwards to select Freq, push TR1 rightwards to select, and you can push it rightwards continuously to cycle through the options.
   - To set Other (50Hz), when the option is selected as 50Hz and is highlighted, push TR2 upwards to set the appropriate value. Long press to quickly set. Push TR1 rightwards to confirm the setting.





6.3 Failsafe-Current

The function is used to protect the model and personnel when the receiver is out-of-control.
The default setting is to maintain the last output, meaning that all connectors will maintain their last output in case of out-of-control. Set the appropriate failsafe values according to the specific device used to ensure safety.

Setup:

1. First operate the control corresponding to the channel that needs to set the failsafe to the preset position.
2. Push TR2 downwards or upwards to select Failsafe-Current, then push TR1 rightwards, and a popup prompt will prompt that the setting is successful, which means the current output channel value is set as the failsafe value.

6.4 Failsafe-Default

If you want to restore the default settings, follow the step below.

Setup:

Push TR2 downwards or upwards to select Failsafe-Default, then push TR1 rightwards, and a popup prompt will prompt that the setting is successful, which means the failsafe is restored to the default setting.

6.5 Stick Calibration

For detailed instructions on stick calibration, refer to 4.4 Stick Calibration.

6.6 Display Setting

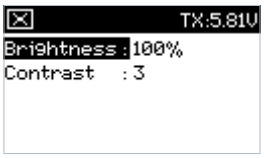
Used to set LCD display brightness and contrast.

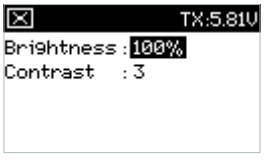
6.6.1 LCD Brightness

Use to set the LCD brightness value.

Setup:

1. Push TR2 downwards or upwards to select Display, then push TR1 rightwards to enter the next level interface.
2. Select LCD brightness, push TR1 rightwards to select a value; push TR2 downwards or upwards to set a suitable value.
3. Push TR1 rightwards to confirm the setting.





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6.6.2 LCD Contrast

To set the contrast of the display screen.

For function settings, refer to section 6.6.1 LCD Brightness.

6.7 Language

Used to set the system language, which can be set to Chinese or English.

Setup:

1. Push TR2 downwards or upwards to select Language, then push TR1 rightwards to enter the next level interface.
2. Push TR2 downwards or upwards to select suitable language.
3. Push TR1 rightwards to confirm the setting.

6.8 Firmware Update

In case of updating the firmware of the transmitter, use this function to put the transmitter to enter updating mode first, then upgrade the transmitter's firmware.

⚠ WARNING	• Do not unplug the USB Type-C cable while the firmware is updating.

Setup:

1. Download and open the latest official firmware.
2. Connect the transmitter to the computer via a USB Type-C cable, and make sure the computer has recognized the transmitter system.
3. On the transmitter side, push TR2 downwards or upwards to select Firmware Update, then push TR1 rightwards, select OK in the pop-up menu, push TR1 rightwards again, and the transmitter will enter the update state.
4. On the computer side, click Update to start the update.
5. After the update is complete, the transmitter will automatically exit the update mode and restart. (Disconnect the USB Type-C cable and close the computer-side firmware tool.)

Note: Updating the firmware may cause the model data to be restored to factory defaults.

6.9 Factory Settings

If you encounter issues with some parameter adjustments while using the transmitter, You can use the Factory Setting feature to perform a complete system reset on the transmitter. All settings and parameters will be restored to their factory default states.

Setup:

1. Push TR2 downwards or upwards to select Factory Settings, then push TR1 rightwards, the system will pop up a prompt interface, select OK.
2. Push TR1 rightwards to restore to default settings.

6.10 About

Used to display system firmware information.

Setup:

Push TR2 downwards or upwards to select About, then push TR1 rightwards, and the system will pop up a prompt interface to view transmitter related information.

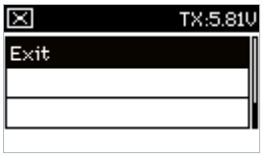
6.11 Exit

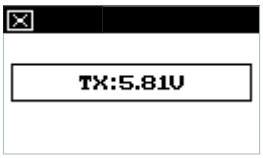
To put the transmitter to exit the setting status.

Setup:

Push TR2 downwards or upwards to select Exit, then push TR1 rightwards to exit.

Note: You can also return to exit the setting status by restarting the transmitter.





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7. Product Specifications

This section contains the specifications of FS-L12A transmitter.

7.1 Transmitter Specifications

Product Model	FS-L12A
Compatible Receivers	FS-iA10B (AFHDS 2A protocol receiver)
Number of Channels	12
Compatible RC Models	Engineering Vehicles
RF	2.4GHz ISM
Maximum Power	0dBm±2（e.i.r.p.）（EU）
RF Protocol	AFHDS 2A
Distance	⩾ 50m(Ground Distance without Interference)
Resolution	4096
Input Power	4~9.0V/DC; 1.5AA*4 or 2S LiPo
Charging Jack	None（The USB Type-C port is only used for power supply.）
Low Voltage Alarm	AA battery: <4.2V; LiPo battery: <7.2V
Antenna	Single Built-in Antenna
Display	128*64 LCD full dot matrix black and white screen
Data Interface	None
Firmware Update	Supported
Temperature Range	-10°C ~ +60°C
Humidity Range	20% ~ 95%
Color	Grey Black
Dimensions	165.7*178.0*50.7mm
Language	Chinese, English
Weight	365g
Certifications	CE, FCC ID：2A2UNL1200

8. Package Contents

Accessories may vary by version. Please consult your dealer for details.

9. Certifications

9.1 DoC Declaration

Hereby, [ShenZhen FLYSKY Technology Co., Ltd.] declares that the radio equipment type [FS-L12A] is in compliance with Directive 2014/53/EU. The full text of the EU declaration of conformity is available at the following internet address:

www.flyskytech.com/info_detail/10.html

9.2 CE Warning

The ce warns that the installation of the antenna used in this transmitter must be kept in distance from all the personnel and shall not be used or used with any other transmitter. The end user and the installer must provide antenna installation instructions and transmitter operating conditions to meet the requirements for rf exposure compliance.

9.3 FCC Compliance 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.

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

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 or more of the following measures:

-- Reorient or relocate the receiving antenna.

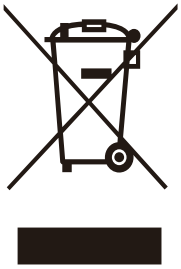
-- Increase the separation between the equipment and receiver.

-- 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.

9.4 Environmentally friendly disposal

Old electrical appliances must not be disposed of together with the residual waste, but have to be disposed of separately. The disposal at the communal collecting point via private persons is for free. The owner of old appliances is responsible to bring the appliances to these collecting points or to similar collection points. With this little personal effort, you contribute to recycle valuable raw materials and the treatment of toxic substances.



CAUTION
RISK OF EXPLOSION IF BATTERY IS REPLACED BY AN INCORRECT TYPE.
DISPOSE OF USED BATTERIES ACCORDING TO THE INSTRUCTIONS

9.5 RF Exposure Statement

The device has been evaluated to meet general RF exposure requirement.
The device can be used in portable exposure condition without restriction.

CAUTION

- replacement of a battery with an incorrect type that can defeat a safeguard (for example, in the case of some lithium battery types);
- disposal of a battery into fire or a hot oven, or mechanically crushing or cutting of a battery, that can result in an explosion;
- leaving a battery in an extremely high temperature surrounding environment that can result in an explosion or the leakage of flammable liquid or gas; and
- a battery subjected to extremely low air pressure that may result in an explosion or the leakage of flammable liquid or gas.

Figures and illustrations in this manual are provided for reference only and may differ from actual product appearance. Product design and specificatiions may be changed without notice.

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