FLYSKY
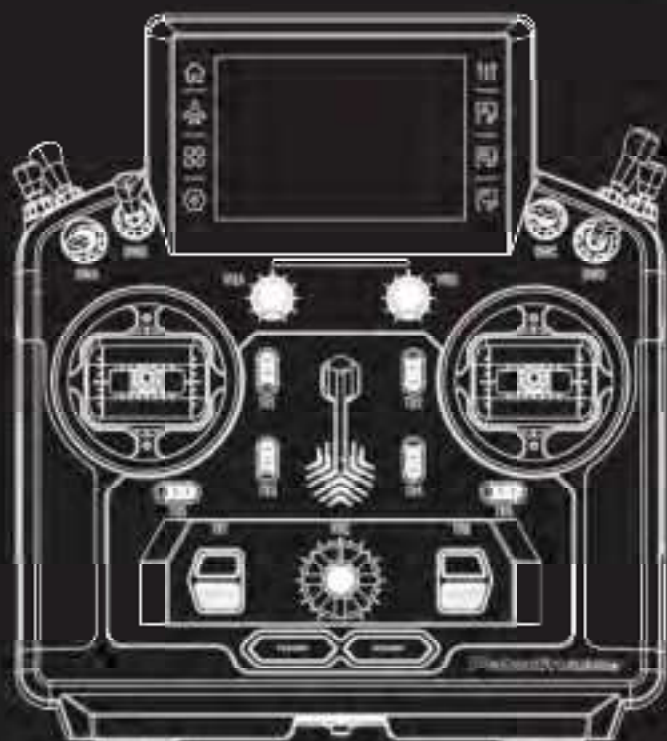
Paladin *PL18 Ultra*

2.4GHz AFHDS 3

Quick Start Guide

Precautions!

For your own safety: Make sure to download and read the Disclaimer & Warning documentation from the Flysky website before using this product.

Flysky Website : www.flysky-cn.com

1. 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.

2. Hereby, [ShenZhen FLYSKY Technology Co., Ltd.] declares that the radio equipment type [Paladin PL18 Ultra] 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

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

FCC Compliance Statements

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.

Caution: Changes or modifications not expressly approved by the party

responsible for compliance could void the user's authority to operate the equipment.

Note: 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.

FCC SAR statement

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. End user must follow the specific operating instructions for satisfying RF exposure compliance. This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.
The portable device is designed to meet the requirements for exposure to radio waves established by the Federal Communications Commission (USA). These requirements set a SAR limit of 1.6 W/kg averaged over one gram of tissue. The highest SAR value reported under this standard during product certification for use when properly worn on the body.

For body worn operation, this model has been tested and meets the FCC RF exposure,Guidelines when used with an accessory desionated fo this product or when used with an accessory that Contains no metal and that positions the handset a minimum of 25mm from the body.The maximum SAR value is 0.033W/kg when the model used 25mm close to user.

CE SAR statement

This equipment complies with Directive 2014/53/EU radiation exposure limits set forth for an uncontrolled environment. End user must follow the specific operating instructions for satisfying RF exposure compliance.

This transmitter must not be colocated or operating in conjunction with any other antenna or transmitter.
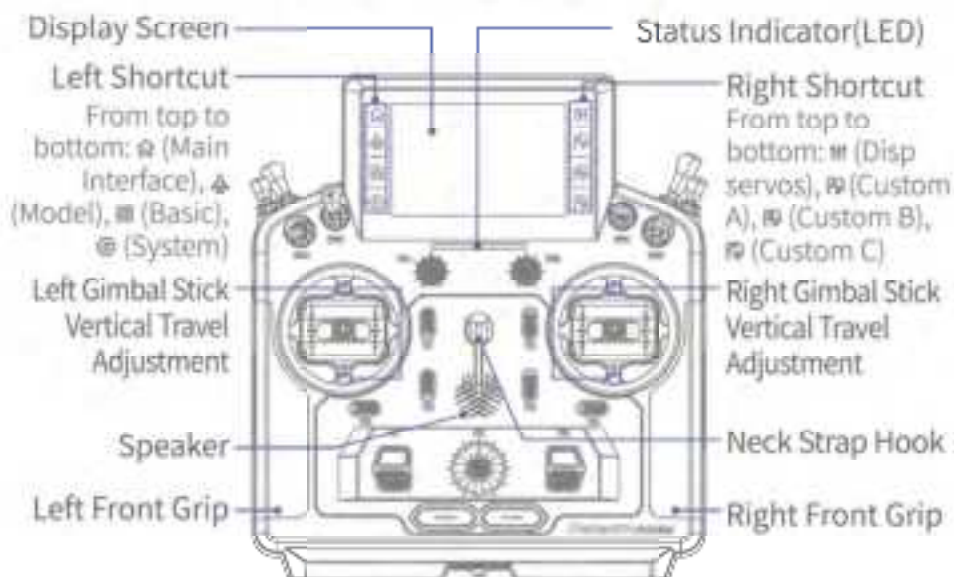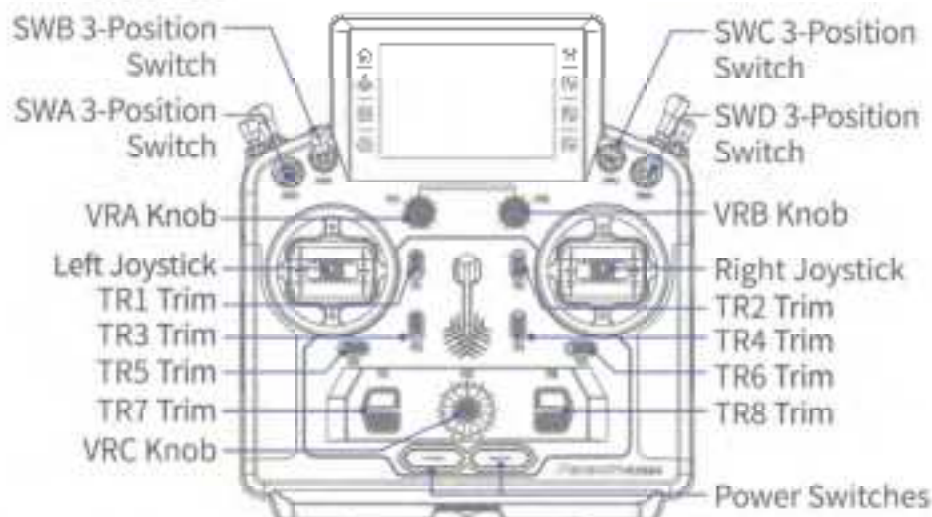The portable device is designed to meet the requirements for exposure to radio waves established by European Union market(France). These requirements set a SAR limit of 2W/kg averaged over ten gram of tissue.

The highest SAR value 0.021/kg reported under this standard during product certification for use when properly worn on the body.
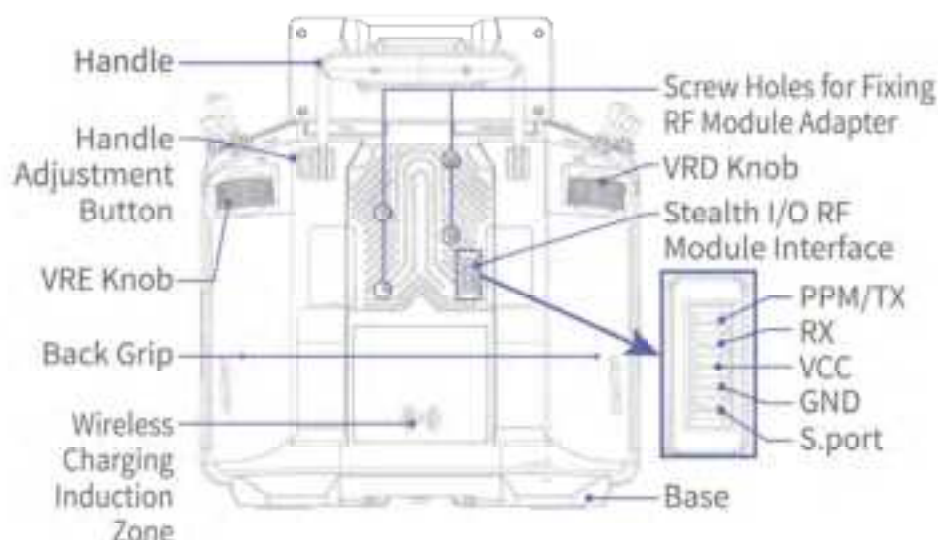
CAUTION

- 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.

Front View

SWB 3-Position Switch

SWA 3-Position Switch

SWC 3-Position Switch

SWD 3-Position Switch

VRA Knob

VRB Knob

Left Joystick

Right Joystick

TR1 Trim

TR2 Trim

TR3 Trim

TR4 Trim

TR5 Trim

TR6 Trim

TR7 Trim

TR8 Trim

VRC Knob

Power Switches

Display Screen

Status Indicator(LED)

Left Shortcut

From top to bottom: ⌂ (Main Interface), ⬡ (Model), ▥ (Basic), ⊚ (System)

Right Shortcut

From top to bottom: ⋈ (Disp servos), ▧ (Custom A), ▧ (Custom B), ▧ (Custom C)

Left Gimbal Stick Vertical Travel Adjustment

Right Gimbal Stick Vertical Travel Adjustment

Speaker

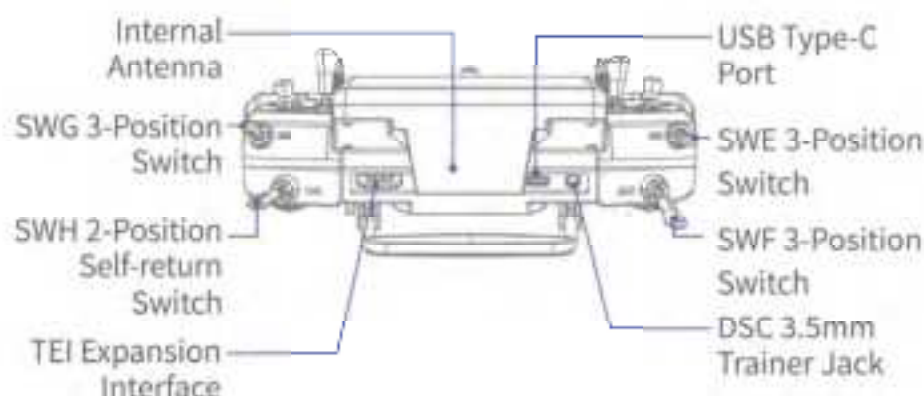Neck Strap Hook

Left Front Grip

Right Front Grip

Note: Custom A, Custom B and Custom C of the Right Shortcut are not assigned by default and do not respond when touching. Then after setting the specific functions, you can use the shortcut here to access the corresponding function quickly.
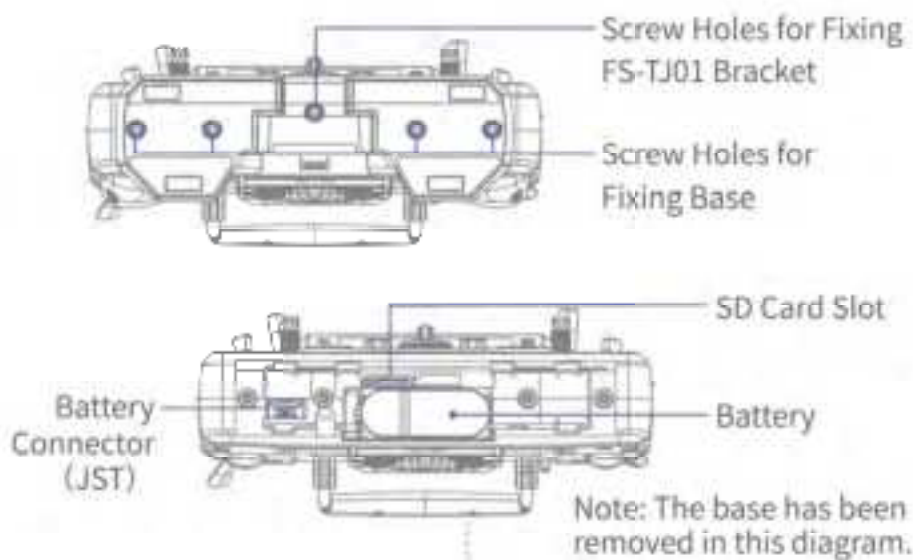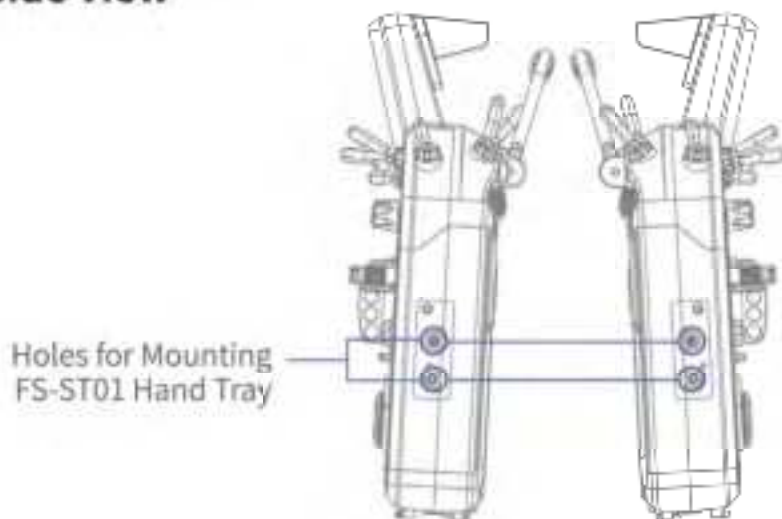
Back View

Handle

Handle Adjustment Button

VRE Knob

Back Grip

Wireless Charging Induction Zone

Screw Holes for Fixing RF Module Adapter

VRD Knob

Stealth I/O RF Module Interface

PPM/TX
RX
VCC
GND
S.port

Base

Top View

Internal Antenna

SWG 3-Position Switch

SWH 2-Position Self-return Switch

TEI Expansion Interface

USB Type-C Port

SWE 3-Position Switch

SWF 3-Position Switch

DSC 3.5mm Trainer Jack

Bottom View

Screw Holes for Fixing
FS-TJ01 Bracket

Screw Holes for
Fixing Base

SD Card Slot

Battery
Connector
(JST)

Battery

Note: The base has been
removed in this diagram.

Side View

Holes for Mounting
FS-ST01 Hand Tray

Buttons Under Left Grip and Right Grip

DFU Upgrade Button for Transmitter Firmware

Forced Shutdown Button

Firmware Forced Upgrade Button for Built-in RF Module

USB Connection for RF Module or Transmitter Switching Button

Powering ON

Follow the steps below to turn on the transmitter:

1. Check to make sure that the battery is fully charged;

2. Press and hold the two Power Switches of the transmitter at the same time until the screen lights up;

3. Follow the on-screen prompt until the transmitter powers on successfully.

   - Whether to enable the transmission function. If you do not need to use RF this time, you can disable the transmission function.

   - Whether the switch in a safe position or not (a red background on a control indicates that the position needs to be adjusted). According to prompt, check control position and move it to the correct position.

Battery Installation

Follow the steps below to install the transmitter battery:

1. Remove the 4 screws securing the base (as shown in Figure ①).

2. As shown in Figure ②, push the base in the direction of the arrow until it is removed.

3. As shown in Figure ③, install the 1S LiPo battery into the battery compartment and connect the battery wiring to the Battery Connector (JST).

4. As shown in Figure ④, after aligning the icons on the base and the transmitter, push the base in the direction of the arrow until it is in place, lock the screws, and be careful to avoid pinching the battery wiring.
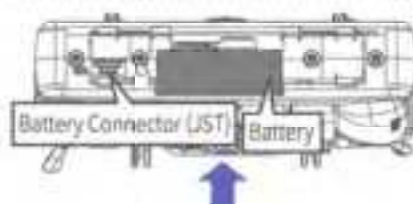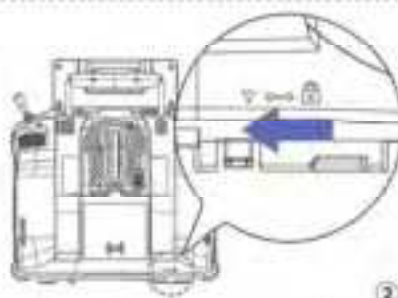
Battery Compartment Dimensions (mm)

70   56   21

①

②

Battery Connector (JST)   Battery

③

④
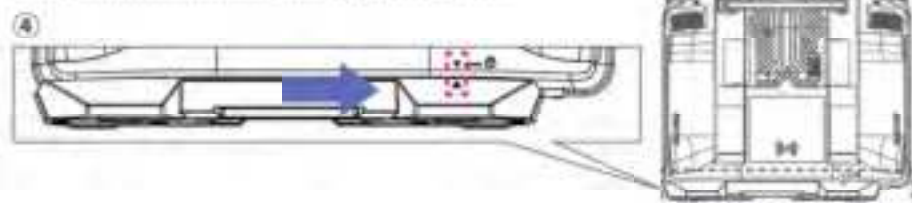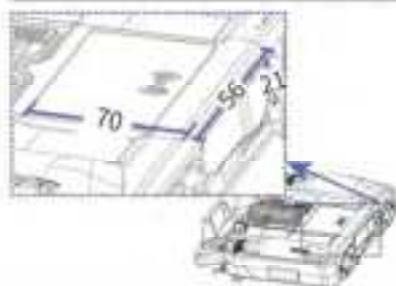
Charging

The transmitter can be charged in two ways: USB charging and wireless charging

- The USB Type-C cable is connected to the power supply at one end and to the USB Type-C port of the transmitter at the other end.

- Use the wireless charging dock to charge it (as shown in the figure).

This transmitter features three charging modes: fast charging, slow charging and normal charging.

- When the battery voltage is greater than 3V and the charging voltage is lower than 5V, the normal charging mode will be enabled.

- When the battery voltage is lower than 3V, the slow charging mode will be enabled.

- When the battery voltage is greater than 3V and the charging voltage is lower than 5V, the fast charging mode will be enabled. In this mode, the charging time from 20% to 80% via USB charging is in about 2 hours; while via wireless charging is in about 3 hours.
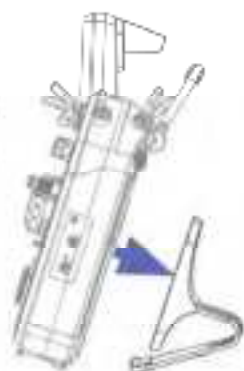
> ❶ Please use the standard charging cable of this transimitter to charge it. Improper use may cause damage to the battery and affect its service life.

Notes:

1. Before the transmitter is turned on, connect it to the computer via the USB Type-C cable. After the transmitter is turned on, a pop-up window will appear, indicating to select the USB function: "Charge" or "Online ". If you choose "Charge", the transmitter does not communicate with the computer. If you choose "Online", the transmitter communicates with the computer, that is, FlySky Assistant or simulator software can be accessed.

2. Charging and power status during charging:
   - If the transmitter is in dormancy or shutdown state, the LED color of the transmitter indicates the charging and level status: When fully charged, the LED is blue solid on; when the power is high, the LED flashes blue slowly; When the power is low, the LED flashes red slowly; When the power is moderate, the LED flashes yellow slowly.

Powering OFF

Follow the steps below to turn off the transmitter:

1. Power off the receiver first.
2. To shut it down, press the two power switches of the transmitter at the same time for three seconds until the screen displays "Shut down ··· Please waiting for!" . After the system saves the data, it will shut down automatically.

Note: When you press the power switches of the transmitter at the same time, the screen will display a prompt of shutdown time and dormancy mode icon. At this time, the transmitter will enter the dormancy mode if you click the dormancy mode icon on the screen. Click the screen again or long press the two power switches for 3 seconds to release dormancy.

❗ Always power off the receiver before the transmitter, failure to do so can result out-of-control. Unreasonable setting of the Failsafe may cause accidents.

Main Screen Introduction

Main Interface

Model Name —

Receiver Signal Status Column —

Transmitter Power

Lock Icon

Current Model picture, and entry for Model Select

Entry for Custom Menu

TX, RX voice alarm, Signal, and entry for Sensor

RF System, and entry for Bind setting

Three dots indicating three pages: The white dot indicates the current page, and the gray dots represent the other two pages. To enter the other two pages, swipe the screen left or right.

Right Main Interface

TX voltage, RX voltage, Signal, and entry for Sensor setup

Timer and entry for Timer

Entry for Timer Display: 1

Timer and entry for Timer

Entry for Timer Display: 2

Left Main Interface

Switch: Displays the current physical position of the switch.

Knob: Displays the current value of the knob.

Stick: Displays the current value of the stick.

Trim: Displays the current value of the trim.

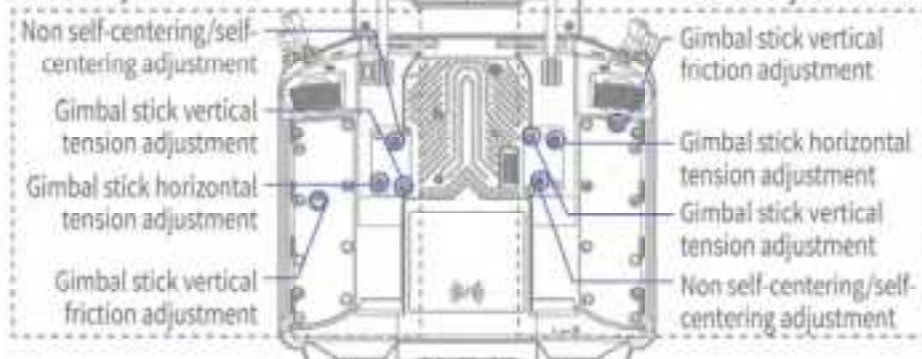## The Introduction about the Icons of the Function Interface

■	The screen is locked.	🔓	The screen is unlocked.
✖	Function is disabled.	☑	Function is enabled.
◎	Restore functions default settings.	■	For all conditions
◎	To assign controls, such as switches.	■	For the current condition
▬	To increase the value, press and hold to increase rapidly.	◀	To decrease the value, press and hold to decrease rapidly.

Gimbal Assembly Adjustment Instructions

Gimbal Assembly Non Self-centering(Self-centering)/ Friction/ Tension Adjustment

For Right Gimbal
Stick Adjustment:

Non self-centering/self-centering adjustment

Gimbal stick vertical tension adjustment

Gimbal stick horizontal tension adjustment

Gimbal stick vertical friction adjustment

For Left Gimbal
Stick Adjustment:

Gimbal stick vertical friction adjustment

Gimbal stick horizontal tension adjustment

Gimbal stick vertical tension adjustment

Non self-centering/self-centering adjustment

As shown above, by adjusting the screws which are located in the screw holes in the back of the transmitter, the gimbal stick can be set to either self-centering or non self-centering and the friction in case of non self-centering, as well as changing stick tension in case of self-centering (Remove the grips to find the relevant screw holes and screws).

❗ Always perform a stick tension test while turning the screws to ensure stick tension is not too loose or too tight. Overtightening a screw can damage the spring. Loosening a screw too far can cause a spring to fall out in the transmitter and possibly damage the circuitry within. Pay attention to the force when adjusting.

Take right gimbal stick as example.

Non Self-centering to Self-centering

1. Use the screwdriver to adjust the screw (shown above) counterclockwise until the gimbal stick changes to self-centering.

2. Adjust the screw counterclockwise to adjust the frictional force.
3. If you need to adjust the horizontal centering force or centering force, adjust the corresponding screw accordingly. The force increases clockwise, and decreases counterclockwise.

Self-centering to Non Self-centering

1. Use the screwdriver to adjust the screw clockwise so that the gimbal stick changes to non self-centering.
2. Adjust the screw clockwise to strengthen the frictional force.
3. If you need to adjust the horizontal centering force or centering force, adjust the corresponding screw accordingly. The force increases clockwise, and decreases counterclockwise.

Gimbal Assembly Vertical Travel Adjustment
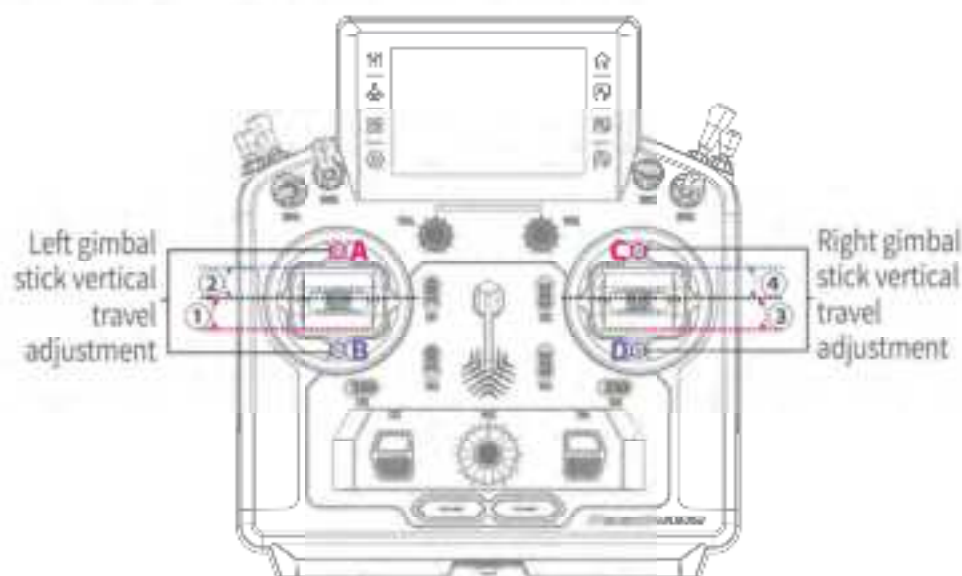
Note: The screw **A** is used to adjust ① half travel, and the screw **B** is used to adjust ② half travel. The screw **C** is used to adjust ③ half

travel, and the Screw **D** is used to adjust ④ half travel.

For the gimbal assembly of the transmitter, the adjustable range of mechanical travel is from 38° to 54° . Travel can be adjusted as your desired.

Note: Pay attention to the force when adjusting.

The steps are as follows:

1. Use a metric 1.5mm Allen wrench to adjust the corresponding screw in a clockwise direction to increase the travel.
2. Adjust the corresponding screw in the counterclockwise direction to decrease the travel.

Language

This transmitter has 2 languages available.

Setup:

1. Tap System > General > Language to enter the language interface.
2. Click your preferred language option, then tap ◙ to *return*.
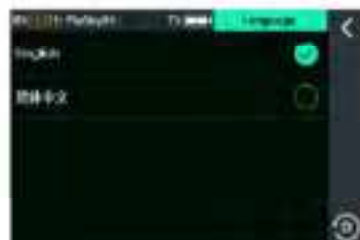
Stick Mode

This system supports four stick modes. As for airplane models, from channel 1 to channel 4, by default, these four channels are assigned to aileron, elevator, throttle and rudder. There are four preset modes of the sticks in order to meet the different requirements. You can select suitable mode among Mode1, Mode2, Mode3 and Mode4. The green icon indicates the currently

selected mode, and the default mode is Mode 2. You can select suitable mode as your desired. Then you need to adjust the gimbal assembly as needed to match the mode. Follow the steps as follows.

Setup:

Tap ⊞ (Basic) > Models, then click the function box on the right side of Stick: to enter the stick mode setting interface and tap the mode as your desired. Tap ◧ to return.

Note: You can also set the stick mode on the Updating Wizard interface after upgrading the transmitter firmware.

Model Select

This function is used to create a new model by Copy or New function, and delete all models except the current model, or search the receiver corresponding to the model. The settings of the models vary for the different models. This function provides opportunities that one transmitter can adapt varieties of real models. PL18 ultra transmitter can store up to 50 different models.

Take creating a new model by Copy as an example. Refer to the Copy section for the New/Delete Model function settings.

Setup:

1. In main interface, tap Model Select to enter.
2. Touch the model you want to copy.
3. Click Copy, then click Yes on the popup screen to finish copying.

Models

The PL18 Ultra transmitter supports seven models, including airplanes, helicopters, gliders, multicopters, cars, boats and robots. You can set the related settings of models, such as parameters, functions.

Take the airplane as an example, for other model settings, refer to the setup section of the airplane.

Click to enter the interface to modify the model name.

Touch to enter the interface to select stick mode.

Touch to enter the interface to select Model type, Wing, Tail and Optional.

Touch to enter the interface to select model picture.

Touch to reset all data to the model.

Setup:

1. Tap ▦ (Basic) > Models to enter and click Airplane.
2. Click the wing structure according to actual model.
3. Click the tail structure according to actual model.
4. Click the functions according to actual model.

Updating Transmitter Firmware(Plant Update)

Put the transmitter to enter updating mode. 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 micro USB cable while the firmware is updating.

Setup:

1. Download the latest firmware, then open it.

2. Connect the PC and PL18 Ultra transmitter via USB Type-C cable.

3. Access System > General, then Tap Plant update, a pop-up screen appears. Click Yes to put the transmitter into updating mode.

4. At the PC side, click Update to start.

5. The tranmitter will power on again when the updating process is finished. Then remove the USB Type-C cable and close the firmware.

Notes:

1. The firmware of the transmitter can also be updated by FlyskyAssistant. In such case, make sure the transmitter is connected to the PC only via USB Type-C cable.

2. If more than one firmware are opened at the same time, only one software can recognize the transmitter.

Updating RF Module Firmware

The RF module firmware can be updated by the following two ways.

- If the transmitter poweres on and comes along with a wizard after the transmitter has been updated the firmware. Follow the promt to complete the settings of Stick Calibration and RF update.

- Or updating via RF firmware update function, folllow the setps as below:

  1. Tap ▦ (Basic) > RF setting to enter RF setting interface.

  2. Tap RF firmware update, then click Yes on the popup screen to enter the updating mode. When the update is finished, the update menu will exit automatically.

Updating Receiver Firmware

Update receiver firmware. The PL18 Ultra includes firmware for receivers such as FTr8B and FTr10.

It can also be updated via FlyskyAssistant. Please note that this function is applicable for the FlyskyAssistant firmware version 3.0 or later.

Setup:

1. The transmitter and the receiver has bound normally.

2. Tap Receiver Update to enter and

select the receiver you want to update.

3. Click Update, then click Yes in the pop-up screen to put the receiver into updating mode.

4. After the updating is finished, it is will automatically return to the previous interface.

Bind Button
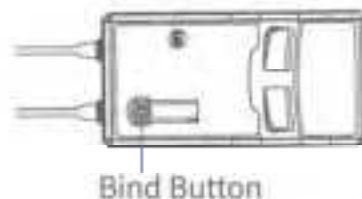
❗ After the transmitter has updated a firmware, it is unable to bind to the receiver, the receiver firmware may need to be updated forcedly.

Taking the FTr8B receiver as an example, the firmware of the receiver can be forced update in two ways:

- Power on the receiver while pressing the BIND button over ten seconds until the LED works in three-flash-one-off mode repeatedly, release the BIND button.
- Power on the receiver first, then press and hold the BIND button for more than 10 seconds until the LED works in three-flash-one-off mode repeatedly, then release the BIND button.

Note: Different receivers may enter the forced update state in different ways, go to the FLYSKY website to query the instructions of the relevant receiver.
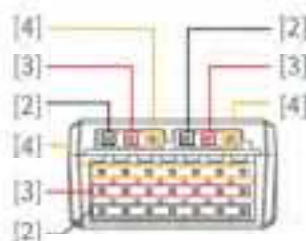
Binding

The transmitter and the receiver have been pre-bound at the factory, however, if you need to bind a new receiver or rebind the original receiver, follow the steps below.

Take FTr8B receiver as example, the overview of FTr8B receiver is

the following.
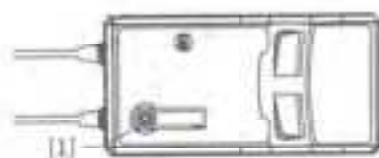
[1] Bind Button [2] - (Power Cathode)

[3] + (Power Anode) [4] S (Siginal Pin)

Setup:

1. Tap 88 (Basic) > RX setting > Bind setting to enter the bind setting interface.
2. Click the appropriate RF system and whether two-way communication, and set the starting channel for the enhanced edition receiver, then tap Bind, the transmitter will enter the binding state.
3. Put the receiver into binding mode.
4. The binding process is finished when the LED of the receiver stops flashing and is solid on.
   - When the transmitter enters binding state in one-way mode, after the receiver LED becomes slow flashing, then put the transmitter to exit the binding state. At this time, the receiver LED is solid on indicating the binding is successful.
5. Check to make sure the transmitter and the receiver are working normally, repeat steps 1 to 3 (binding process) if any problems arise.

Notes:

1. Flysky AFHDS 3 classic edition receivers include FTr10, FGr4, FGr4s, Gr4p, FTr4 and FTr16S. Other Flysky AFHDS 3 receivers are enhanced edition receivers.

2. These RF system options: Routine 18ch, Lora 12ch and Fast 8ch are adaptive for AFHDS 3 enhanced edition receivers. Routine 18ch: Provides 18 channels with moderate communication distance; Lora 12ch: Provides 12 channels with super anti-interference and moderate communication distance; Fast 8ch: Provides 8 channels, fast communication within short distance. Whicle Classic 18ch and C-Fast 10ch are adaptive for AFHDS 3 Classic edition receivers. Classic 18ch: Provides 18 channels. C-Fast 10ch: Provides 10 channels, and the delayed effect is better than Class 18ch. After clicking Bind, a prompt of supported receivers will be popped up. Select the appropriate RF system option according to the actual application scenarios and the actual receiver models.

3. When you select Routine 18ch, with choosing Two way connection, the transmitter will support Double RX mode, one RX mode is the default mode. In this mode, set the Start channel of the primary and secondary receivers first, and then bind the primary receiver and secondary receiver with the transmitter, respectively. Click Bind, the transmitter will enter the binding state.

PWM Frequency

The receiver's output frequency of PWM signals can be regulated. Theoretically, the higher the frequency, the faster the signal is refreshed, and the faster the servo responds to the signal change. However, some servos may not support PWM signals with excessively fast frequency. You may need to take into account the servo's performance when doing such settings.

The interface of this function may vary with bind modes. For enhanced receivers, the PWM frequency of each channel can be set separately, and the options include analog servo (50Hz), Digital servo (333Hz), SR (833Hz), SFR (1000Hz) and Custom.

If a classic edition receiver is bound, all channels are set together,

and cannot be set to SR (833Hz) and SFR (1000Hz)

❗ The conventional PWM frequency is 50-400 Hz. The overall system delay will be decreased when SR and SFR are selected, but the pulse range of PWM signals is changed. Please make sure the servo supports the frequency and the setting is correct. Otherwise the servo may not work properly, or even get damaged.

Take the enhanced edition receiver as an example:

Setup:

1. Tap ▦ (Basic)> RX setting > PWM Frequency to enter the setting interface.

2. Click the function item you want to set to enter, then tap the corresponding option as your desired, and click ◀ to return.

3. If you choose [Custom], click "+" or "-" to adjust the frequency.

4. If you choose Synchronized with RF, click the check box at the right. " √ " means the function is activated.

Interface when binding enhanced edition receivers.

Interface when binding classic edition receivers.

⚠ Failsafe

The function protects user by preventing the model from behaving unexpectedly if signal is lost.

In the Failsafe interface, you can set to no output status for i-BUS-out &PPM signals. You can set all channels separately to No output, Hold or Fixed value. You can set all channels with fixed value to the current output value.

This function interface is also equipped with a test failsafe function, which can simulate that after the model is out-of-control, the transmitter will turn off the RF output, and the model will enter the failsafe state, and all channels will be output according to the failsafe settings.

Setting recommendations:

1. Considering that the aircraft/glider can glide down without power, users can set the throttle to the lowest position value or idle, and the rest of the channels to smooth flight (or hovering).

2. The throttle of helicopter is set to the lowest position value, and the rest of the channels is set to smooth flight.

3. For the settings for multicopter, see the relevant manual.

4. If the device connected to the receiver has requirements on the failsafe setting, it can be set as required.

Note: The above suggestions are for reference only. The specific settings are subject to the actual flight conditions.

Failsafe Test Function

Setup:

1. Tap ◼, a popup window comes along with it as shown. Press and hold ◼ over 1 second, then the system turns off RF. And the receiver output channel value according to failsafe settings.

2. Release ◼, the RF is on and the connection is restored.

Setting i-BUS-out & PPM to no output

After Set i-BUS-out &PPM to no output is selected, regardless of failsafe setting, these two types of failsafe signals are always no

output. By default, it is enabled.

Setup:

if the checkbox next to right of the
option is not ticked(√) indicating that
the function is disabled. After losing
control, you can set by channel: fixed
value or keeping the last output value
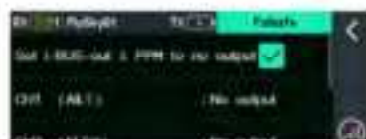
Setting A Channel

Can be used to set the output signal states of channels 1~18
respectively: No output means that there is no output(only for
some special models or some flight control board detection ports);
Hold means the last channel value is kept in case of out-of-control;
Fixed value means that you can set the failsafe output value by
moving the control, then the value set will output.

Setup:

1. Tap a desired channel to enter.
2. Tap the desired function options. If
   the fixed value is selected, turn the
   Stick(Switch, Knob or LSW) to the
   desired position and hold it, and
   click ▪ to finish.
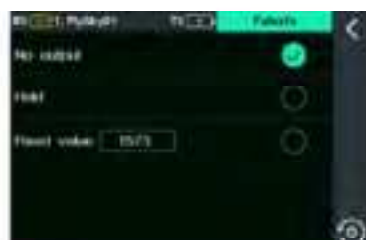
Setting All Fixed Value Channels

Used to set the output value of all channels that have been set to a
fixed value after out-of-control.

Setup:

After taping, meanwhile, toggle the
control to the desired position and
hold it, in the pop-up prompt menu,
click Yes to finish.

• For more information, please read the full user manual.

Specifications

Product Model	PL18 Ultra
Compatible Receivers	AFHDS 3 protocol receivers, such as FTr12B, FTr8B, Tr8B, FTr10, FTr16S, FTr4, INr6-HS and TMr for air models, FGr8B, FGr4B, FGr12B, FGr4P, FGr4S, FGr4 and GMr for car models, FBr12 for boat models, etc.
Compatible Models	Fixing-wing airplane, helicopters, gliders, multicopters, cars, boats or robots
Number of Channels	18
Number of Bands	171
RF	2402.15MHz-2479.85MHz
RF Protocol	AFHDS 3
Maximum Power	<20dBm (e.i.r.p.) (EU)
Antenna	Two built-in antennas (FPC antenna)
Input Power	1S (3.6V)*8700mAh
Charging Jack	USB Type-C/ Wireless charging
Low Voltage Alarm	Yes
Data Connector	USB Type-C, TEI expansion interface, DSC 3.5mm Trainer Jack(PPM)
Simulator	USB Simulator
Resolution	4096
Display	IPS colour Touchscreen with 320*480 resolution
Distance	More than 3500m (Air distance without interference)
Online Update	Yes
Color	Black
Temperature Range	0-45°C
Humidity Range	20%~95%
Language	Chinese or English
Dimensions	212.5*86.7*191mm
Certifications	SRRC, CE, FCC ID: 2A2UNPL18ULTRA