

T8S



(FHSS)

8-Channel Remote Controller

Instruction Manual

Compatible with Fixed-wings/Gliders/Multirotors/Cars/Boats

* Please be kindly noted that this manual will be updated regularly and please visit Radiolink official website to download the latest version.

Thanks for purchasing Radiolink 8-channel remote controller T8S.

To fully enjoy the benefits of this product and ensure safety, please read the introduction carefully and set up the device as described below:

If any problems found during the operation process, please kindly refer to the manual first. Then pilots could contact our distributors to find solution or follow our Facebook homepage <https://www.facebook.com/Radiolink-1455452961436694/> to search related key words. Also pilots can send questions to after_service@radiolink.com.cn or after_service1@radiolink.com.cn and we will answer your question at the earliest.

Due to unforeseen changes in production procedures, the information contained in this manual is subject to change without notice.

For more information please check our website <http://www.radiolink.com> and follow our Facebook and youtube homepage.



SAFETY PRECAUTIONS

- Never operate models during adverse weather conditions. Poor visibility can cause disorientation and loss of control of pilots' model.
- Never use this product in a crowd or illegal areas.
- Always check all servos and their connections prior to each run.
- Always be sure about turning off the receiver before the transmitter.
- To ensure the best radio communication, please enjoy the flight/driving at the space without interference such as high voltage cable, communication base station or launching tower.

WARNING

This product is not a toy and is **NOT** suitable for children under the age of 18. Adults should keep the product out of the reach of children and exercise caution when operating this product in the presence of children.

Water or moisture may enter the transmitter inside through gaps in the antenna or joystick and cause model instability, even out of control. If running in the wet weather (such as game) is inevitable, always use plastic bags or waterproof cloth to cover the transmitter.

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Chapter 1 Introduction of T8S

As image of T8S (Mode 2) shown below, there are two 3-way switches, one toggle-switch, one push-button, eight trimmer buttons and two joysticks. The Mode can be personalized to 1(throttle on right hand) or 2 (throttle on left hand) or both sticks return to center points with the small accessory packed in the bag.

Factory setting by default: CH5/3-way switch on the right, CH6/ Push-button, CH7/3-way switch on the left, CH8/toggle-switch.



Mode 2

1.1 Installation of Remote Control

1.1.1 Installation of Receiver Antenna

1. Keep antennas as straight as possible, or the effective control range will reduce.
2. Big models may contain metal parts that influence signal emission. In this case, antennas should be positioned at both sides of the model to ensure the best signal status in all circumstances.
3. Antennas should be kept away from metal conductor and carbon fiber at least half inch away and no over bending.
4. Keep antennas away from motor, ESC or other possible interference sources.
5. Sponge or foam material is advised to use to prevent vibration when installing receiver.
6. Receiver contains some electronic components of high-precision. Be careful to avoid strong vibration and high temperature.
7. Special vibration-proof material for R/C like foam or rubber cloth is used to pack to protect receiver. Keeping the receiver in a well sealed plastic bag can avoid humidity and dust, which would possibly make the receiver out of control.

When all the above steps are complete, please turn off the transmitter and repower on to test if the receiver is correctly connected with it.

1.1.2 T8S Battery Charging

The built-in battery of T8S is 1S lithium. When the voltage becomes low, the green indicator will flash with a DD warning tone. Make sure to charge the battery in time to avoid the possible damage by over discharge.

T8S charging is as simple as only an android USB cable needed, connecting to the computer or portable charger.

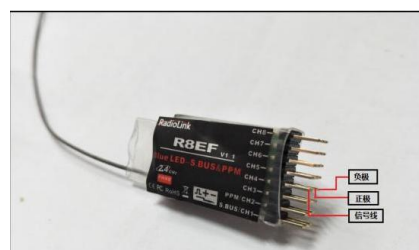
1.2 Basic Setup

1.2.1 Compatible Receivers

The standard receiver equipped to T8S is R8EF, 2.4G 8-channel receiver with SBUS, PPM and PWM signal output supported. R8FM is another compatible receiver with extreme light weight of 2.5g and double signal output of SBUS and PPM. The control distance of both receiver is up to 2000 meters.

R8EF Parameters

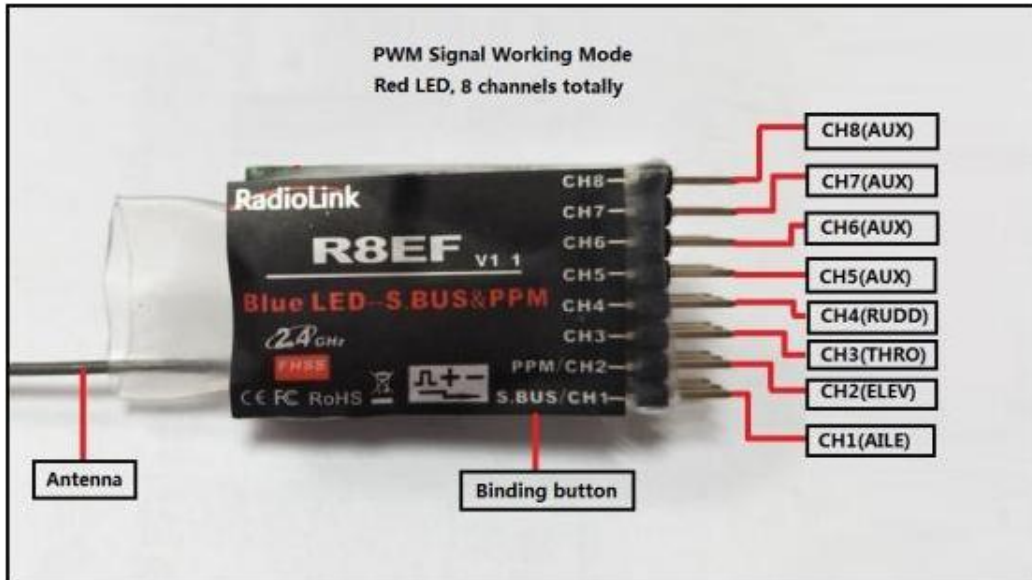
- 1) Channel Qty: 8
- 2) Operating Voltage : 4.8-10V
- 3) Operating Current : 30mA
(Input Voltage 5V)
- 4) Dimension : 48.5*21*11mm
- 5) Weight : 7g



- 6) 2048 section precision, 0.5us per section, servo anti-shake rudder.
- 7) Distance: 2000m in the air (depending on the actual flight circumstances)

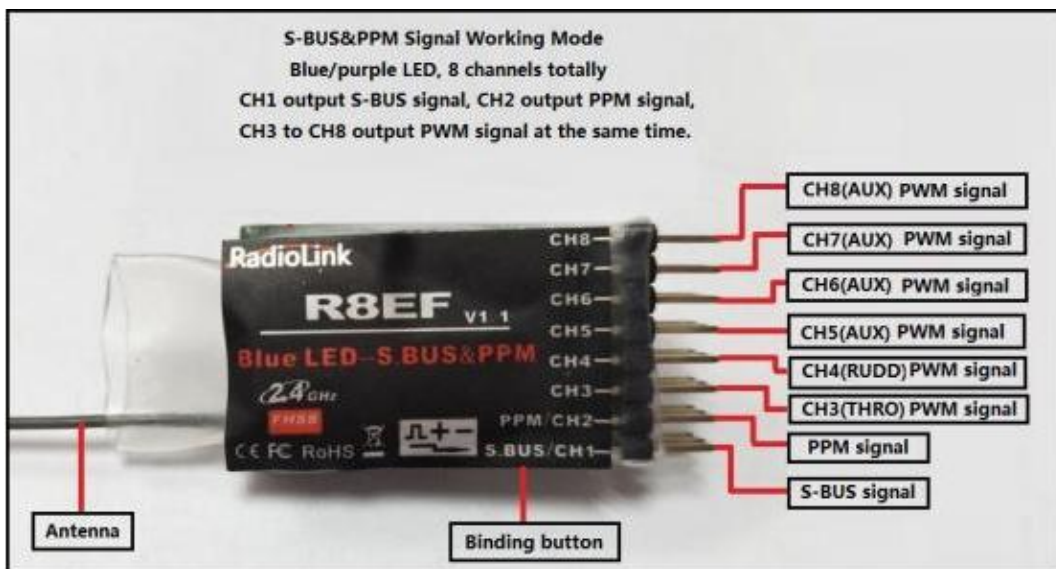
Signal Working Mode

(1) *PWM Working Mode:* Receiver indicator is RED with all 8 channels output PWM signal.



(2) *SBUS/PPM Working Mode*

Receiver indicator is Blue(Purple) with 8 channels output in total. Channel 1 is SBUS signal, channel 2 PPM signal and channel 3 to 8 PWM signal.



R8FM Parameters

- 1) Channel Qty: 8
- 2) Operating Voltage : 4.8-6V
- 3) Operating Current : 30mA (Input Voltage 5V)
- 4) Dimension : 16.0*21.5*1.0mm
- 5) Weight : 2.5g
- 6) 2048 section precision, 0.5us per section, servo anti-shake rudder.
- 7) Distance: 2000m in the air (depending on the actual flight circumstances)



Signal Working Mode

8 channels output of SBUS or PPM signal.

When the indicator is BLUE, the output of 8 channels is SBUS

When the indicator is RED, the output of 8 channels is PPM.

1.2.2 Binding

Every transmitter owns a unique ID code. Before using, binding transmitter to receiver on aircraft is a must. When done binding, ID code will be stored in the receiver, no need to rebind, unless the receiver is going to work with another transmitter. If a new R8EF or R8FM receiver is purchased, binding needs to be done before using.

Binding steps of all transmitters and receivers from RadioLink are the same as follow:

- (1) Put the transmitter and the receiver together within 1 meter.
- (2) Power on the transmitter and the receiver. The receiver will bind to the closest transmitter.
- (3) Press the ID SET on the side of the receiver for more than 1s, the flashing LED means binding starts. When LED is always on (stops flashing), binding is complete.
- (4) Check if servos move as the transmitter commands to verify the binding success.

1.2.3 Signal Switch between SBUS&PPM and PWM

R8EF: Short press the ID SET on the receiver twice within 1s to switch the SBUS/PPM signal to PWM signal. When the RED LED is on, PWM signal is output while SBUS/PPM signal is output when both RED and BLUE leds are on.

R8FM: Short press the ID SET on the receiver twice within 1s to switch the SBUS to PPM signal. When the RED LED is on, PPM signal is output while SBUS signal is output when both RED and BLUE leds are on.

1.2.4 T8S Calibration

When the transmitter is power-off, toggle both sticks at the central point. Then press the first trimmer button on the left (with an arrow to left) and the power button simultaneously, the four green indicators will start flashing and the T8S is ready to be calibrated..

Range Calibration: Toggle both sticks (Ch1-4) to the highest point/maximum and the lowest point/minimum. Then back to the central point. (Refer to image below)

Central Point Calibration: When the sticks are back to the central point, press the second trimmer button on the left (with an arrow to right). Two short DD sounds will be heard while the first green indicator is always on, meaning the stick calibration is complete.



Chapter 2 Firmware Upgrade

T8S can be upgraded with latest functions added, keeping advanced as always.

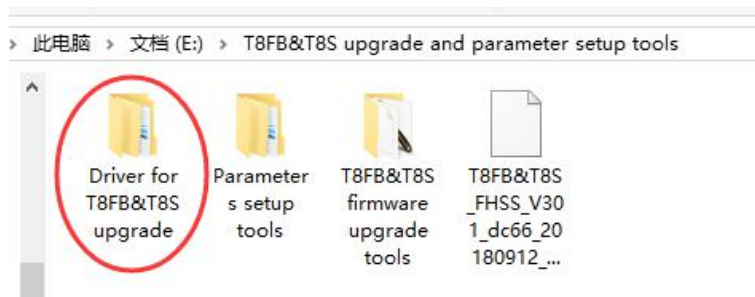
The function of data backup makes massive copy possible, Even the same model can directly copy data.

Set parameters once, copy at ease!

The whole file with all necessary tools can be download via

<https://mega.nz/#F!sVESQSwR!65d0382IOAXwMz2uHcPZCg>

1. Driver Installation: Select the correct driver depending on the computer system.



2. Open the software to upgrade T8S firmware



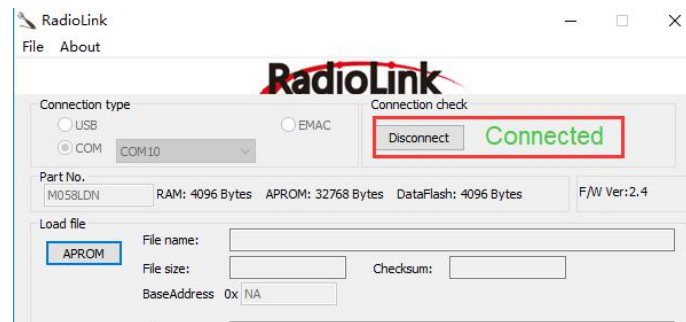
3. Connect T8S with computer via a USB cable

4. Choose the correct port

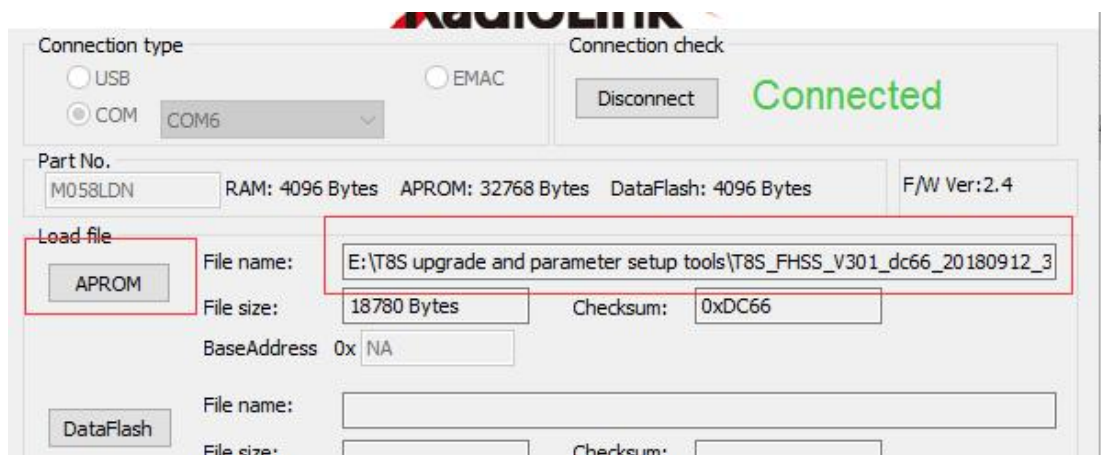
5. Click CONNECT and press the power button once quickly within 1s



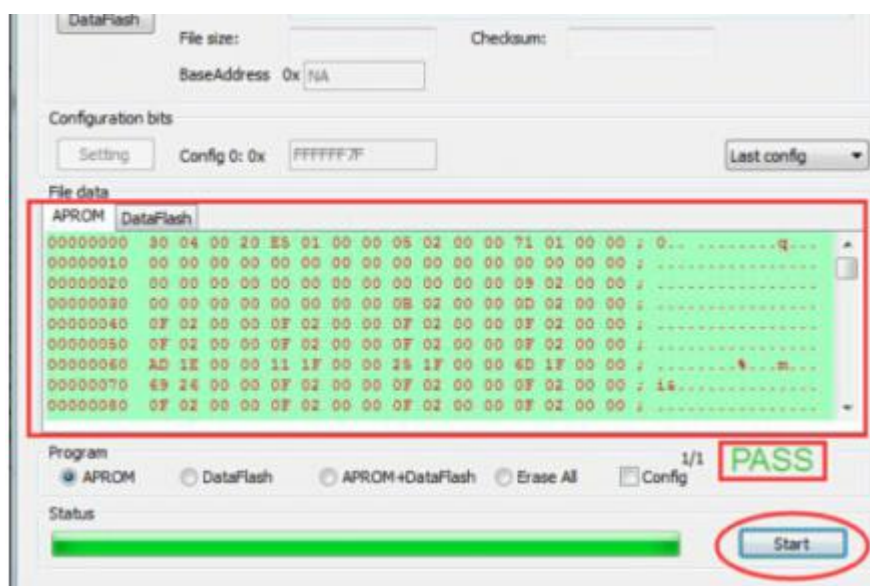
6. When “DISCONNECT” in red turns to “CONNECT” in green, it means it’s connected with success.



7. Click “APROM” and choose the latest firmware **T8FB&T8S_FHSS_V301_dc66_20180912_33bit.hex**



8. Click “START” and the process bar becomes green. When the green bar goes to the end and shows PASS, the firmware is upgraded with success.



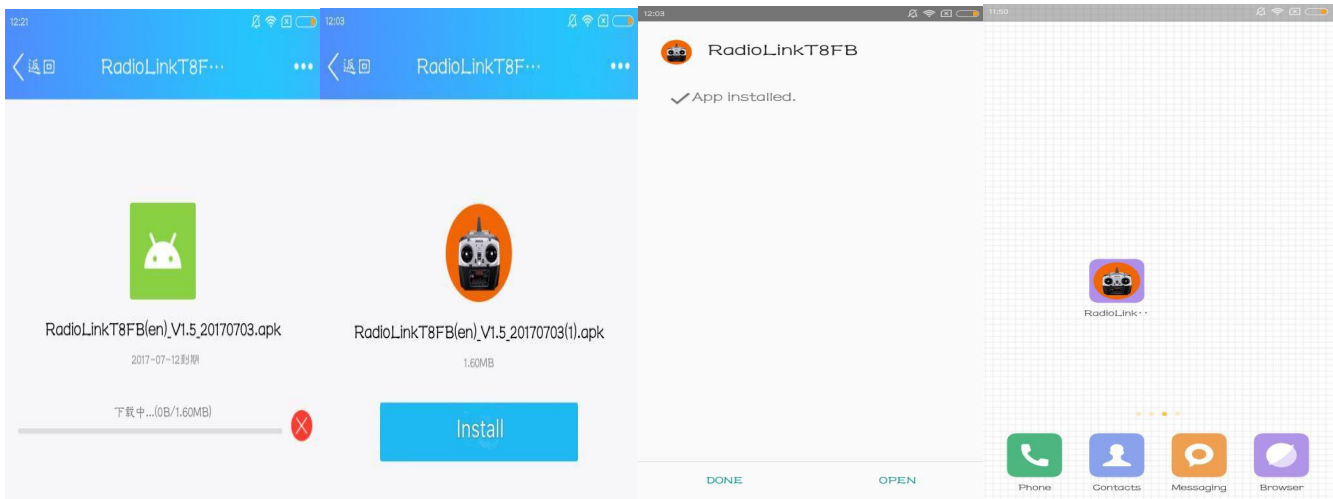
Chapter 3 Parameters Setup via Mobile

3.1 Android APP Installation

Scan the QR code on the right or choose the file **RadiolinkT8FB/T8S.APK** in the zip file downloaded via <https://mega.nz/#F!sVESQSwR!65d0382IOAXwMz2uHcPZCg> and install into an Android phone.



Note The version of T8S parameters setup APP is only available on Android mobiles with V4.0 or above.



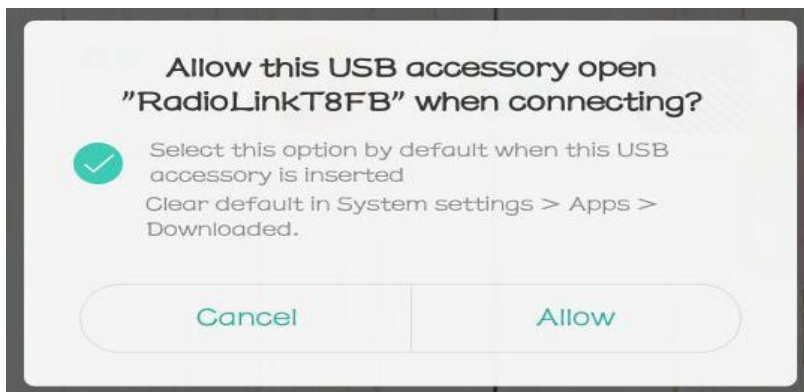
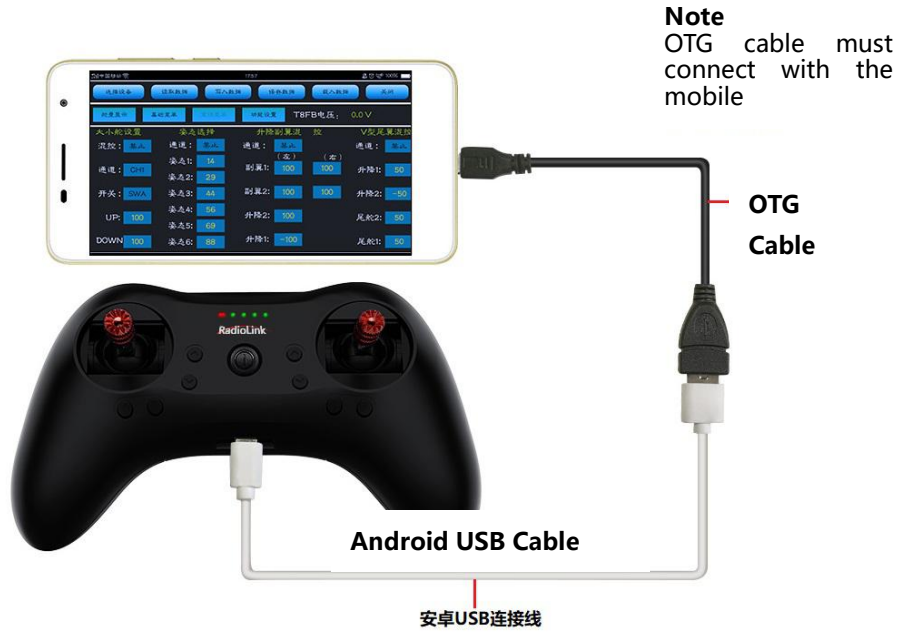
3.2 Connection

When the installation of parameter setup app is complete, power on T8S then connect it with the phone as below picture shown. the mobile will show a USB port is connected. Click confirm and enter APP interface.

Note The smaller head of the USB cable connects with T8S while the bigger head connects with OTG cable. The smaller head of the OTG cable connects the mobile.

The OTG cable should connect with the mobile, otherwise T8S can't be connect with the APP successfully.

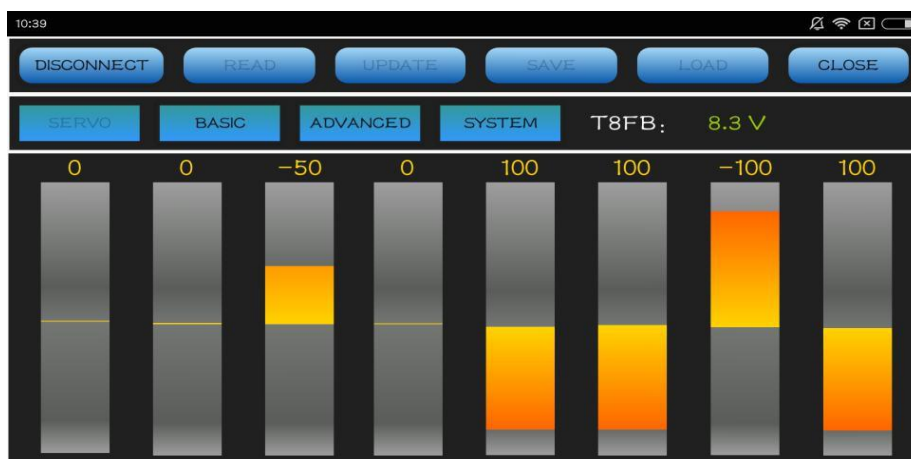
Some smart-phones (eg. OPPO R9s) need to open the OTG function to ensure successful connection (settings - Other settings - OTG Connection)



3.3 Parameters Setup Menu

There are four parameter setup menus: SERVO/BASIC/ADVANCED/SYSTEM

If the mobile connects T8S successfully, the SERVO menu will be reached directly when open the APP. If not successfully, click "CONNECT". If still fail, click "DISCONNECT" the reconnect OTG cable then click "CONNECT" in the APP.



(DIS)CONNECT: When APP is opened on the mobile, T8S will be connected automatically. If can't be identified, click DISCONNECT then CONNECT again.

READ: Click READ, the APP will start reading the data in T8S, the process won't complete until 4 D sounds are heard. Every time reopen the APP, the data displayed are default. If any parameter is changed, it can't be displayed until clicking READ.

UPDATE: Click to update the changed data into the T8S and a D sound means update complete. If no D sound means fails to update. Click UPDATE each time parameter is modified.

SAVE: Click to save the APP data in the /model/model01.txt in the mobile and APP will automatically create a model01. txt file.

LOAD: Click LOAD and the APP will take the data from /model/model01.txt. APP will notify if this file can't be found.

CLOSE: Click Close to exit.

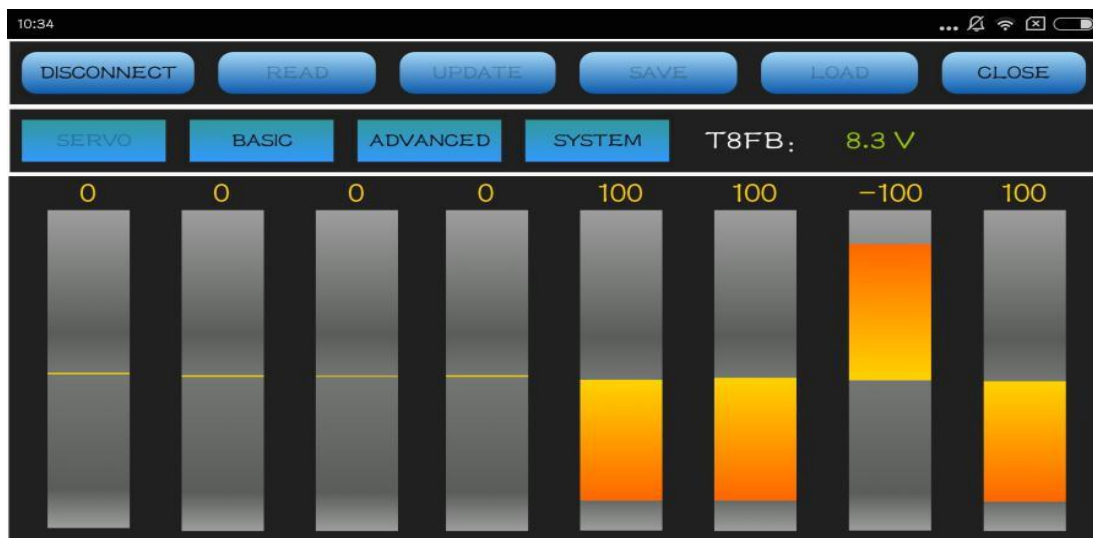
Note

There is T8S(T8FB) voltage displaying on each menu.

Whenever parameter modification is needed, click READ then set the data as wish then click 'UPDATE' to finish parameter setting.

3.3.1 SERVO Menu

The 8 rectangles shows the CH1-CH8 servos range(4 basic channels and 4 auxiliary channel) from left to right.



3.3.2 BASIC Menu

There are six parameters to setup including "REV" "SUB" "EPA-L" "EPA-R" "F/S" "DELAY"



REV: Defines the relationship between the transmitter controls and the receiver output for channels with options of NORM and REV. Make sure to check all servos move to the correct direction as wish under control. Make sure to check all servos move to the correct direction under control.

Note

If programmable mix control function is used to control several servos for fixed wing/gliders, eg. V-TAIL mix control, make sure to set the phase to avoid possible confusion.

SUB: Makes small changes or corrections to the neutral position of each servo. The default is 0 setting by factory setting. That is, no SUB-TRIM. The range is from -120 to +120 and can be modified with actual need.

It' s advised to center the digital trims before making SUB-TRIM changes, and keep all of the SUB-TRIM values as small as possible. In order to restrict the servo travel range, the recommended procedure is as follows:

- Measure and record the desired surface position;
- Zero out the SUB-TRIM ;
- Mount servo arms and linkages so that the control surface' s neutral is as correct as possible;
- Modify with SUB-TRIM small range value to make fine corrections.

EPA-L & EPA-R : Sets the range of each channel in percentage. The most flexible version of travel adjustment is available. It independently adjusts each end of each individual servo' s travel, rather than one setting for the servo affecting both directions. The default value is 96.

F/S: Sets responsive action of model in case of signal loss or low Rx voltage(in percentage). Each channel can be set independently.

- The NOR (normal) setting holds the servo in its last commanded position.
- The F/S (Fail Safe) function moves each servo to a predetermined position.

Note

The setting of the throttle F/S also applies to the low battery voltage. F/S value 0 means throttle stick at the lowest point while 50 means at the central point.

The F/S function is used in certain competitions to ensure safety landing of the model prior to flying away and dropping. Conversely, it can also be used make all servos neutral to maximize the flight time.

DELAY: Adjusts the synchronous ratio between the servos position and the actual operation. The default value is 100 by factory setting meaning no delay.

3.3.3 ADVANCED Menu

There are four parameters to setup: " D/R" "ATTITUDE" "ELEVON" "V-TAIL"



D/R: Sets the auxiliary switch to control the max and min values of corresponding channel range. Turn on "MIX" (mix control) first and choose an auxiliary switch to flip and set the max/min range value to its corresponding channel by toggling. In the example picture shown above: When flip SWA upward and toggle CH1 stick , it means the max/min range of CH1 can be +100 and -100. If the UP value modified to 50, it means the max range can only be +50/-50 when toggle CH1 up and down. 'DOWN' means when flip SWA downward, the max/min value of CH1 is +100/-100.

ATTITUDE: Turn on "CH" first and select the preferred channel. The values behind each channel means different control percentage output different control signals.

Pilots can set 6 different modes (NORMAL, ATTI, GPS, HOVER, F/S and AUX) by adjusting the related rates. Every mode has different rates to get a unique signal. NORMAL mode preset 0%, ATTI 50%, GPS 100%, HOVER 25%, F/S 75% and AUX 50%. 0% means a output signal 1ms, and 100% means 2ms.

ELEVON: Turn on "MIX" (mix control) first, adjust the aileron distance and allow aileron differential. ADJUSTABILITY:

- CH1 and CH2 are required.
- Independently adjustable aileron travel allows aileron differential.
- Independently adjustable elevator travel allows for differences in up vs. down travel.
- The separate ELEVON settings for each condition can be set. (GLID only)

V-TAIL: This function is used on the V-tail aircraft.

V-TAIL mixing is used with v-tail aircraft so that both elevator and rudder functions are combined for the two tail surfaces. Both elevator and rudder travel can be adjusted independently on each surface.

ADJUSTABILITY:

- CH2 and CH4 are required.
- Independently adjustable travel allows for differences in servo travels.
- Rudder differential is not available. To create rudder differential, set RUD1 and 2 to 0, then use two programmable mixes, RUD-ELE and RUD-RUD, setting different percentages for up and down. These are new rudder travels. Turn the trim and link off, switch assignment null so rudder won't be accidentally turned off.

Note

V-TAIL function and ELEVON/AILEVATOR mix functions can't be activated at the same time. If both of these functions are activated, an error message will be displayed and you must inactivate the last function prior to activating ELEVON.

Make sure to move the elevator and rudder sticks regularly while checking the servo motions. If a large travel value is set, when the sticks are moved at the same time, the controls may mutually disturb or run out of travel. Decrease the travel until no disturbance occurs.

3.3.4 SYSTEM Menu

There are three parameters to set: "AUX-CH" "PROG.MIX1" "PROG.MIX2"



AUX-CH

CH5/6/7/8 Auxiliary channels Ch5 to Ch8 can be personalized to different switches

TX Alarm When the transmitter voltage is lower than the value set, T8S will make D sound to warn.

STK-MODE By default, 1 is throttle at right while 2 is throttle at left. 3 is throttle at right for toys while 4 is throttle at left for toys.

VERSION: The numbers mean different versions.

PROG. MIX1/PROG. MIX2

Programmable mix controls is to

1. Diversify attitude changes of aircraft (eg. Rolling to realize when rudder are commanded);
2. Control a certain axis with two or more servos(eg. 2 rudder servos);
3. Correct special movement automatically (eg. Lower FLAP and ELEVATOR servos at the same time);
4. Control the second channel to respond to the movement of the first channel(eg. Increase smoke oil to respond to high speed, but only when the smoke switch is activated).;
5. Turn off the main control under certain circumstances (eg. For dual-engine aircraft, turn off a motor or speed up/down one motor to assist rudder to turn)

PROG. MIX1: the mix control of AILERON and ELEVATOR servos is to assist turning.

PROG. MIX2: the mix control of ELEVATOR and FLAP servos is to loop in small diameter.

Adjustability: Channel 1 to 8 can be personalized to mix.

MAS: Master channel. Other channels need to cooperate with movements of the master channels.

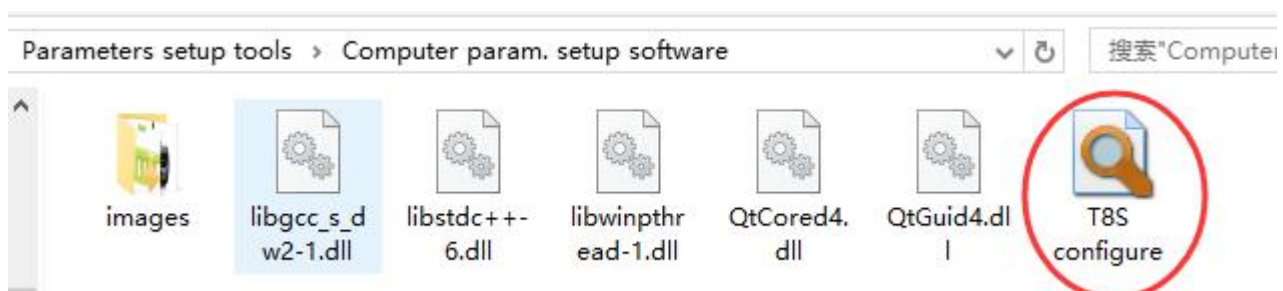
SLA: Slave channel. Many mix controls are controlled by one master channel. Eg. Rudder-Aileron mix control with ration of 25% to correct rolling. No switch is needed.

Chapter 4 T8S Parameters Setup via Computer

4.1 Software Installation and Connect

Connect the computer and the T8S with an android usb cable

Open the parameter setup software in the downloaded file , then power on T8S



Choose Port Number(T8FB connect to COM will automatic identified when connect to computer), setting baud rate: **115200, 8-1-None**(8 data bits, 1 stop bit, no parity check), click OPEN to connect.



4.2 Parameters Setup Menu



READ T8S data will be read and displayed on computer when click "READ" (red and green LEDs will flash quickly when reading).

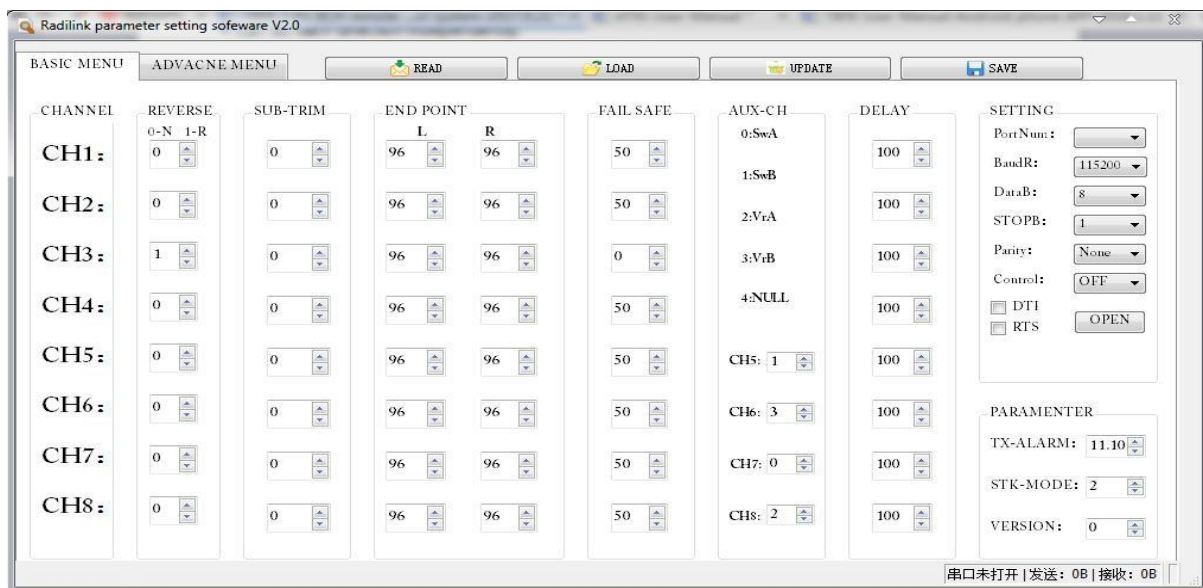
LOAD The data file in txt format saved will be loaded in the software

UPDATE Modify the data as wish then click "UPDATE" to change the parameter in T8S. (red and green LED will flash slowly once).

SAVE The data read or set will be saved as TXT file in the computer.

4.2.1 BASIC Menu

There are 6 parameters to setup: "REVERSE" " SUB-TRIM" " END POINT" " FAIL SAFE" " AUX-CH" " DELAY"



REVERSE: Defines the relationship between the transmitter controls and the receiver output for channels with option of NORM and REV. Refer to 3.3.2 for more details .

SUB-TRIM: Makes small changes or corrections to the neutral position of each servo. Refer to 3.3.2 for more details .

END POINT: Sets the range of each channel(in percentage);
The most flexible version of travel adjustment is available. It independently adjusts each end of each individual servo' s travel, rather than one setting for the servo affecting both directions. Refer to 3.3.2 for more details .

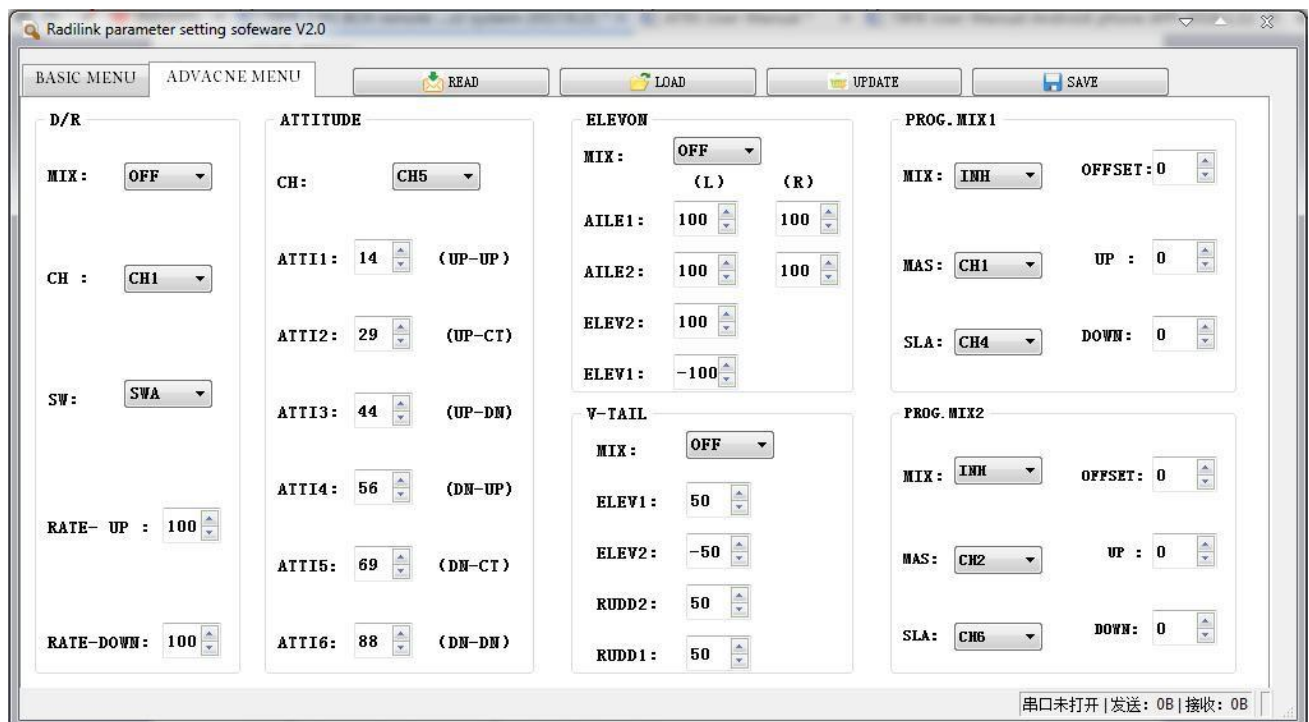
FAIL SAFE: Sets responsive action of model in case of signal loss or low Rx voltage(in percentage). Refer to 3.3.2 for more details .

AUX-CH: Defines the relationship between the transmitter controls and the receiver output for channels 5-8. Refer to 3.3.4 for more details .

DELAY: Adjust the ratio between the position of servos and the actual operation. Refer to 3.3.2 for more details .

4.2.2 ADVANCE Menu

There are six parameters setup " D/R" "ATTITUDE" "ELEVON" "V-TAIL" PROG.MIX1/PROG.MIX2 as below shown:



Refer to 3.3.3 and 3.3.4 for more setup details of all parameters.

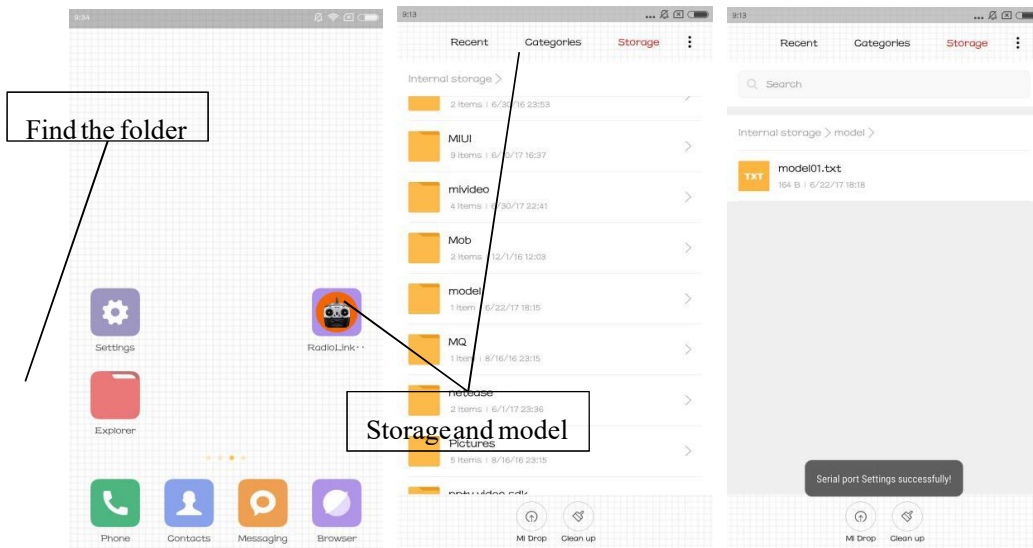
4.3 Parameters Save in T8S

1. Connect T8S with computer via an android cable and power on T8S
2. Make sure the correct port is identified and click OPEN to connect
3. Modify the parameters as wish and click UPDATE. If updated successfully, T8S makes a B sound
4. Disconnect T8S from computer and repeat step 1 and 2
5. Click READ, parameters will be changed with the modified ones automatically and T8S makes short and fast B sound, meaning modified data has been well recorded into T8S

Chapter 5 FAQ Shooting

- What is the order of the connections for APP--USB--T8S ?
A: The best order is: Turn on T8FB -- connect USB cable-- connect APP. When APP is connected, a notice will pop out to open APP.
- Why the voltage displayed always moves up or down when connecting T8S to APP, sometime is 0, sometime is 7.98v ?
A: Close the APP, then reconnect again will solve this problem.
- Why the APP shows the flashback reminder?
A: Please contact our sales-after service, we will send you a upgrade software to solve this problem.
- What are the correct steps for the "READ" ?
A: In general, please click the "READ" first after connecting T8FB to APP to make sure the data of APP is the default data or you setup last time.
- How to restore factory settings?
A: When the APP opens (don' t click READ) with the current data is factory setting data, click UPDATE to so restore the factory setting.
- What if the APP always fails to connect to T8S?
A: It could possibly because of the android USB cable. If not, please contact our after-sales service.
- The TXT document of "Smart-phone APP" and "the computer parameter setting software" can work for the same effect ?
A: Both of the two files are the same, but the name of computer software needs to be changed as "model01.txt" , then create a file box (model) at root directory in Phone, put the "model01.txt" in "model" .

➤ How to find "SAVE" file (/model/model01.txt)



➤ How to solve the problem that the APP flashback when you click "LOAD" button.

- A: Open the permissions.
Settings - Permissions - APPS - RadioLink T8FB- Accept.

