



LeFeiRC SN-L v2 Fixed Wing FLight Controller with Pixel OSD User Manual

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SN-L v2

SN-L v2 USER MANUAL

FixedWingFLightController + Pixel OSD



WARNING

Please strictly observe the relevant national laws and regulations for safe flight. We do not advocate flying high, flying far, experiencing the fun of the model airplane in a fully safe environment, and creating a good environment for model airplane sports! Before using flight control, you must fully understand the various safety details and deeply understand that the flight is risky. It is impossible to be completely reliable on the equipment and any

electronic products on the aircraft. You should use the Sinan (SN_L) fixed-wing flight control to evaluate the product and use the system according to relevant regulations. The system provider does not use the product for any use. Responsible for direct or indirect losses and consequences.

INTERFACE

POWER

VTX, CAM, is powered by PMU 12V

GPS, FC is powered by PMU 5V

Servo and receiver are powered by external BEC

led

GREEN LED	GPS
OFF	disconnect
FLASH	Satellite < 7
ON	Satellite > 6

RED LED	RC
FLASH	Lose control
ON	normal

CONNECTOR

AIL	AIL servo (output)
Eli	ELE servo (output)
THR	ESC signal (output)
RUD	RUD servo (output)
AUX1 /PPM	PPM connector/AUX1(output)
AUX2	AUX2(output)
AUX3/AirSpeed	Airspeed connector (inputyAUX3 (output)
RC	SBUS (input)
RSSI	

2. FLIGHT MODES:

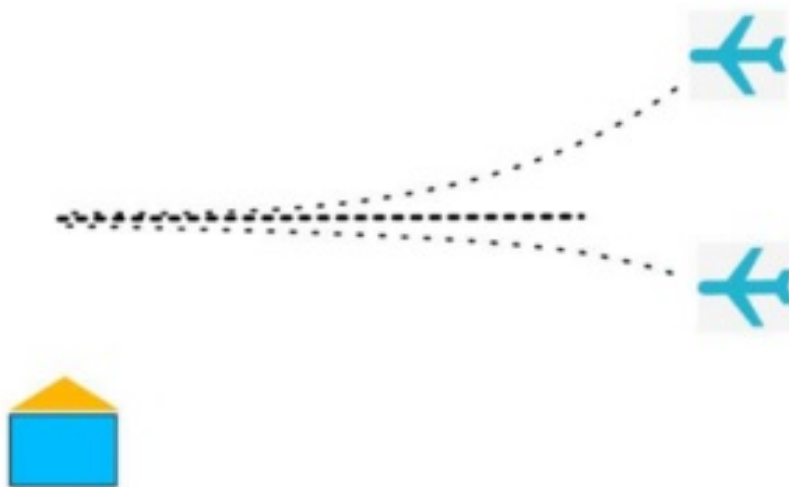
MANUAL	Remote control directly controls the aircraft
STAB	Auto level
HORIZON	ACRO mode « STAB mode (aircraft attitude will follow stick commands with stabilization)
TH	Return to the home position
HOVER	Altitude hold and circle in loiter;
ALFOLD	Aircraft hold altitude and flight route (with GPS)
HEADLOCK	Keep on the route
ACRO	Gyro mode (aircraft attitude will follow stick commands)
SUB-MODE	Switch mode to slave mode

RTH MODE

① You need to set < CRUISING SPEED >, < CIRCLE RADIUS >, < RTH SAFE ALTITUDE > and < RTH CIRCLE ALTITUDE > in the RTH mode.

< RTH SAFE ALTITUDE > refers to the height that the aircraft needs to maintain when returning home; for example, The aircraft begins to return home at an altitude of 2000 meters. At this time, when the < RTH SAFE ALTITUDE > is set to 500m, the aircraft will slowly descend to 500 meters and then return home; If the < RTH SAFE ALTITUDE > is less than 500 meters, the aircraft will climb to a height of 500 meters first.

< RTH CIRCLE ALTITUDE > refers to the altitude when the plane is hovering when < RTH SAFE ALTITUDE > less than < RTH CIRCLE ALTITUDE >; the plane will hold rth alt.



ALTHOLD MODE

FC will lock the route if GPS is connected. Otherwise only hold altitude. The throttle stick is placed in the middle position, meaning that the current speed is equal to the set speed. Move up or down to increase or decrease speed.

GEO-FENCE:

Enter the OSD setting item < AUTO PARAMETER>:

< GEOFENCE DISTANCE>: The aircraft will automatically switch to the RTH mode when flying over this distance. Cancel the RTH mode by quickly dialing the mode stick; the '0' setting is used to remove the radius fence limit.

< GEOFENCE ALTITUDE>: If the aircraft exceeds this altitude, the altitude will be forcibly lowered; '0' setting is used to remove the altitude limit.

3. SWITCH FLGHT MODE

How to Set flight mode

* It is recommended to lower the remote control's travel range to about 1000-2000, so as to ensure that the flight controller recognizes the effective range.

*Make sure that the six modes are not repeated, such as setting two RTH modes.

NO SUB-MODE



The flight controller will evenly divide channel 5 into 6 segments. If you are using a 3-position switch, the model may become the first, third and sixth of the 6 modes; if you use Is a 6-segment switch, then you will be able to switch to every mode. if the mode sw happens to be in an invalid area, the flight controller will switch to the RTH mode. You need to ensure that the minimum value of the channel is around 1000 and the maximum value is around 2000.

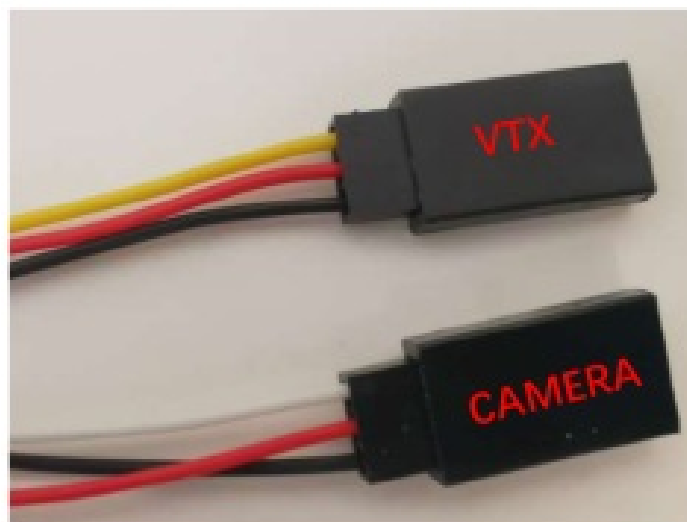
width SUB-MODE

Example

Positio1	Mode switch(CH5)	SUB-Mode Switch(CH6)
2	STAB	TH
3	SUB-MODE	HOVER
	ALFOLD	MANUAL

4. INSTALLATION

PMU MODULE



INSTALL DIRECTION OF FC

4 install direction <BASE FUNCTION> -> <AP DIRECTION>

0°	Arrow point to head
180°	Arrow point to the rear
90°	Arrow point to the left side of the nose
270°	Arrow point to the right side of the nose



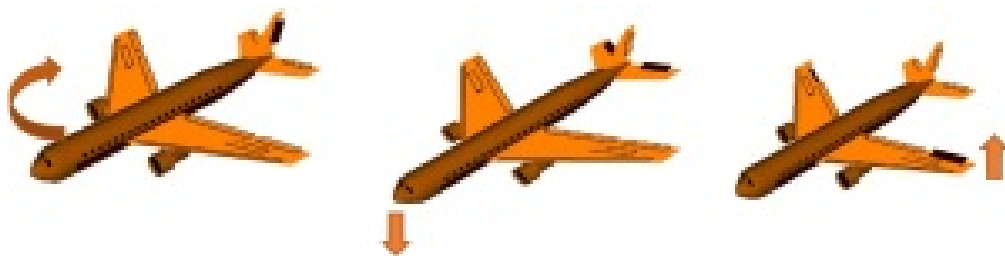
The FC installation should be placed to try to avoid any vibration sources and keep some distance away from the motor; try to install it near the center of gravity. Be sure to recalibrate the level after changing the installation direction.

HOW TO CONNECT SERVO

Interface Type	ALL	ELE	THR	RUD
Wing	SERVO 1	SERVO 2	THR	
T tail	AIL SERVO	Eli SERVO	THR	RUD SERVO
V tail	AIL SERVO	ELE SERVO1	THR	ELE SERVO2

How to configure the throttle differential: Just configure one of the spare AUX ports such as AUX1 as the <THR> function, the flight control will then differentially control the throttle channel and the AUX1 channel; Note that the differential control map is the direction stick, please Confirm that the direction of the throttle differential is correct, and set the differential amount in < SERVO >-> < THRROTLE DIFF >. The greater the differential amount, the faster the flight turns, but it is easier to stall. Start with a small value and test-fly before increasing.

CORRECT CONTROL SURFACES MOVEMENT



REMOTE CONTROLLER

Set RC channel travel range

Please set range at OSD or SN_GCS:

Enter OSD menu <REMOTE>:

CHANNEL MAX: select and push the throttle stick to the max position; hold and exit.

CHANNEL MID: select and exit.

CHANNEL MIN: select and pull the throttle stick to the min position; hold and exit.

Learn the RC

Q. Why should learn RC?

A. To let FC learn channel directions and channel type (AETR or TAER).

STEP1: power on FC.

STEP2: pull the RUD channel to its max position (right or left) where the OSD will display a picture show.

STEP3:



FAILE SAFE

An S-BUS receiver can automatically identify an out-of-control situation and be set up in the radio to auto switch to RTH mode (must only be used when the GPS satellite count is > 6).

A PPM receiver can't auto-identify an out-of-control situation, so you should set this failsafe mode by yourself.

Check the fail-safe mode is functional before every takeoff

OSD

Flight Summary

After landing, the flight summary will be displayed automatically. Quick switch the flight mode to cancel the summary window.



How to enter the OSD menu

Quick switch CH5. You cannot enter the OSD menu during flight.

How to navigate the menu

To enter the OSD menu item	AIL channel right
To exit the OSD menu	AIL channel left
To move the cursor	ELE channel up or down

PREFLIGHT CHECKLIST

Unlock throttle

Make sure you have set < MIN CHANNEL VALUE>

GPS Satellites fixed >6

CHECK ACCEL HEALTH <OSD>-<SCOPE>-<HEALTH>

The vibration is in good condition. When the plane is lying flat, the vibration point is scattered within the two warning lines.



The vibration is large, and most of the vibration points fall outside the warning line, this easily leads to the FC not be able to calculate the correct attitude



CALIBRATE LEVEL<SENSOR>-<CALI LEVEL>

Ensure that the aircraft is wings level with a slight nose-up (cruise level) attitude and remains static during horizontal calibration.

② Horizontal calibration is required after changing the mounting direction..

③ If you have not calibrated for a long time or the temperature difference has changed too much, you need to recalibrate.

SENSITIVITY ADJUSTMENT

① <BASE FUNCTION>-<AIL BASE GAIN> -<ELE BASE GAIN> -<RUD BASE GAIN>: The larger the value, the faster the reaction speed and this can cause excessive jitter.

② < BASE FUNCTION >-<FEED FORWARD GAIN>: The larger the value, the faster the response of the joystick will be, and in this situation with too high a setting the jitter can be easily exceeded.

③ Adjustment Steps:

Step1 set <FEED FORWARD GAIN>, normally reduce the feed-forward gain to 45

Step2 set the <AIL BASE GAIN> -<ELE BASE GAIN> -<RUD BASE GAIN>. You can fly by default, then increase or decrease the sensitivity according to the state of flight.

④ PID speed Factor

PRINCIPLE: the faster the speed, the smaller the rudder surface sensitivity should be. The greater the value, the greater the speed involved in PID control.

EXAMPLE: when the speed of the aircraft is very fast, the aircraft begins to shake; then you can increase <ADVANCE FUNC>-<STAB GAIN>-<SPEED PID FACTOR>value.

⑤ Altitude hold gain <ADVANCE FUNC>-<STAB GAIN>-<ALT HOLD GAIN> IN RTH ALT-HOLD, WAY-POINT

mode, if aircraft action like this in the pitch direction:



please decrease the alt-hold gain in steps until the smooth level flight is maintained.

8. FLIGHT & CONTROL

AUTO TAKEOFF

① AltHold mode Push the throttle to enough power for launch and the aircraft will automatically climb to a height of 20m.

② RTH mode:

Method 1: push the throttle channel up from the zero position, give the plane a forward speed until the motor starts.

Method 2: push the throttle channel up from the zero position, shake the aircraft, until the motor starts. The aircraft will auto climb to 30m.

SPEED CONTROL

① Disconnect Airspeed

Speed is controlled by the ground speed, cruising speed set in <ADVANCE FUNCTION>-<CURISE SPEED>.

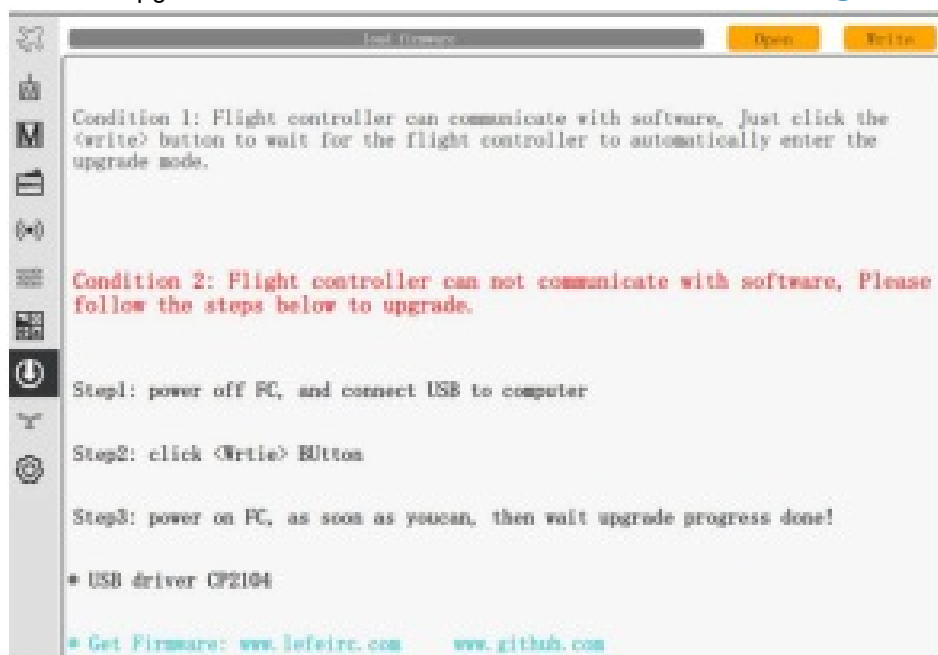
② Connect Airspeed

Speed is determined by airspeed, Preventing the wind from flying in the head, causing the ground speed to be too small, please set <MINIMUM GROUND SPEED>.

FIRMWARE UPGRADE



Get firmware and upgrade the software: www.lefeirc.com or connect lefeirc@163.com




1. connect upgrade tool to computer and install server if needed.
2. Connect to correct COM port. (check-in Device manager)
3. Click <open> button, and load firmware. do not power FC at this stage!!!
4. Click the <write> button, and immediately power on the FC with a battery.
5. Wait until progress reaches 100% complete. Disconnect

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