Introduction

The Archer SR6 are gyro-stabilized receivers with a built-in 3-axis gyroscope and 3-axis accelerometer, they have 6 high-precision PWM channel outputs and features multiple flight modes and configuration methods. They support full-range signal strength with dual detachable antennas it guarantees optimal antenna-reception and maximum range. In addition to all this, the SR6 can also be used as a redundancy receiver along with any other FrSky ACCESS capable receiver equipped with an SBUS port.

All of the Archer receivers are hyper-matched with the ACCESS protocol. They not only feature wireless firmware upgrades and increased range and telemetry performance, the SR6 now supports more functions like configurable telemetry power, S.Port/F.Port switching and FLR output. Additional valuable features are under development to unlock the true potential of the ACCESS protocol.

Overview

Working State

Green LED	Red LED	Status	Yellow LED	State (Calibration of Accelerometer)	Blue LED	State (Self-check)
On	On	Register	ON	exceeding limits [0.9G, 1.1G]	ON	in process
Flash	Flash	Register successfully	OFF	within limits [0.9G, 1.1G]	OFF	completing
On	Off	Bind	Flashing	completing		
Flash	Off	Work Normally				
Off	On	Failsafe				

Specifications

- Dimension: 47.5*20.5*11mm (L*W*H)
- Weight: 13g
- 16 / 24 Configurable SBUS Channels
- 6 High-precision PWM Channels
- Operating Voltage Range: 3.5 -10V
- Operating Current: <60mA@5V
- Control Range: Full range* with telemetry
  (*Full Range: >2km, range may vary based on local conditions.)
- Voltage Measurement Range via AIN2 (External device): 0-3.3V
- Compatibility: All FrSky ACCESS transmitters

Features

- ACCESS protocol with Over The Air (OTA)
- Built-in 3-axis gyroscope and 3-axis accelerometer sensor
- Multiple flight modes and configuration methods (LUA & Freelink)
- Full control range with telemetry
- S.Port / F.Port / F.Port 2.0
- Supports signal redundancy (SBUS In)
- *** Different from ACCST SXR receivers, the SBUS IN signal can be adjusted through the STAB module of SR6 when the STAB function is enabled.**
- External battery / device voltage detection

Channels

Number of Channel	Corresponding parts on the model	Full name	Number of Channel	Corresponding parts on the model	Full name
CH1	AIL 1	Aileron	CH7	User-defined	
CH2	ELE 1	Elevator	CH8	User-defined	
CH3	THR	Throttle	CH9	No mark	Gyro gain adjustment
CH4	RUD	Rudder	CH10&CH11	No mark	Flight modes
CH5	AIL 2	Aileron	CH12		Self-check activation switch
CH6	ELE 2	Elevator			

Gyro gain adjustment of CH9: When the the value of CH9 is in the center, the gain is zero. The gain increases as the value gets bigger. Until the value is ±100%, the gain reaches maximum.

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Note: CH9~CH12 are not marked on the diagram.
CH9 Edit — Setting CH9 at Weight 50 and offsetting 50, the assigned pot/slider will work normally.

Attentions
CH1~CH8 should be connected to the corresponding servos.
S.Port could be used to update, edit parameter settings via FrSky STK PC tool and connect with telemetry sensors.

Registration & Automatic binding (Smart Match™)

Follow the step below to finish the Registration & binding procedure:
1. Put the transmitter/transmitter module into [Reg] status.
1.1 For Taranis X-Lite Pro as an example, turn on the transmitter, go to the MENU-MODEL SETUP-PAGE 2,choose Internal or External RF, and select [Reg].
2. Connect the battery to the receiver while holding the button on the receiver. The RED LED and GREEN LED on the receiver will be on, indicating into the [Reg] status. Select [ENTER] on the transmitter, The RED LED and GREEN LED on the receiver will flash, and the transmitter displays [Registration ok].
3. Turn off the receiver.
4. Move the cursor to select the receiver 1 [Bind].
5. Connect the battery to the receiver, the GREEN LED will flash, indicating into the [Bind] status. Select the RX, the GREEN will keep lit, and the transmitter displays [Bind successful].
6. The transmitter exit [Bind], GREEN LED will keep lit, RED LED will be off, indicating Working normally.

Note: Once the receiver is registered, the button is not needed anymore in the binding process.

Set up your model and receiver

You need complete calibration of Accelerometer about the six positions via the STAB RX.Lua/FreeLink APP/FreeLink.exe firstly.
Step1: Connect your servos follow the channel list according to your model.
Step2: Set you radio follow the channel list.
Step3: Choose the Wing Type via the configuration tool (STAB RX.Lua/FreeLink APP/FreeLink.exe).
Step4: Choose the AUTO LEVEL mode, check the model servo feedback.
Step5: Choose the manual mode, check servo feedback via transmitter.

Quick Mode

It supports stabilization mode and manual (six-axis off) mode and configured through CH10. What's more, an urgent mode is added to configure automatic level mode default through CH12. The precise configuration is written below.

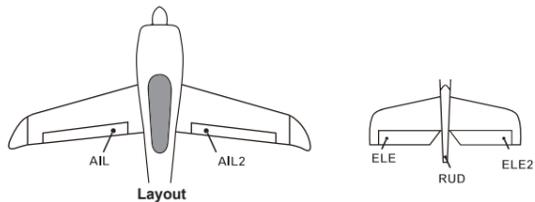| Channel	Position	Flight Mode
CH10	SW Down	None
	SW Mid	Stabilization Mode
	SW Up	Automatical Level Mode
CH12	SW Down	Urgent Mode (Automatic Level Mode)

Note: The default mode of SR6 is Quick Mode. When re-flashing firmware of SR6 or replacing with a new one, the preset mode will be cleared out.
- If Quick mode is applied, there is no Knife Edge or (3D) Hover mode.
- CH11 is not used when using Quick Mode.

Modes

Conventional Model	Stabilization		Delta Wing	stabilization automatic level
	Automatic level		Flying Wing	
	Hover		V-tail	
	Knife-edge			

The model types could be enabled via STAB RX.Lua/FreeLink APP/FreeLink.exe). If required, SR6 could be used as a standard 6 channel receiver.

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Conventional model

Layout

The available flight modes can be assigned to CH10 and CH11 with three-position switches.

Flight mode	Stabilization	Automatic level	Hover	Knife-Edge	Off
CH10 (3 pos SW)	CH10>M+H (CH10 SW Down)	CH10>M+H (CH10 SW Down)	CH10>M+H (CH10 SW Down)	CH10<M-H (CH10 SW Up)	CH10 SW-mid
CH11(3 pos SW)	M-H<CH11<M+H (CH11 SW Mid)	CH11>M+H (CH11 SW Down)	CH11<M-H (CH11 SW Up)	M-H<CH11<M+H (CH11 SW Mid)	

Delta wing & Flying wing & V-tail

Layout of Delta wing / Flying wing　　　　　　**Layout of V-tail**
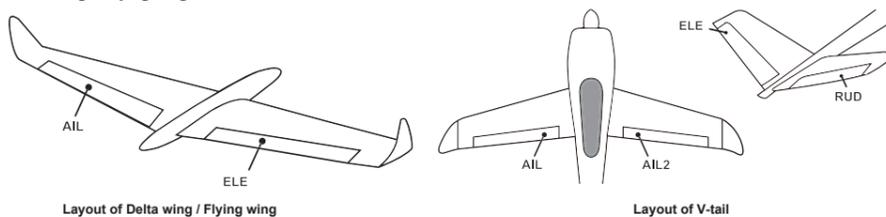
The available flight modes can be assigned to CH10 with a three-position switch.

Flight mode	Stabilization	Auto Level	Off
CH10	CH10>M+H (CH10 SW Down)	CH10<M-H (CH10 SW Up)	CH10 SW-mid

When Delta wing/Flying wing/V-tail is selected, the signal produced by the transmitter should be without active mixes on the channels related to AIL and ELE. SR6 will mix the AIL(CH1) and ELE(CH2) input signal with a fixed mix percentage automatically. Signals on CH4~CH8 will behave as required by the user.

M: represents a neutral signal period (1500μs)
H: represents the time of required signal change to activate the mode (50μs). When the factory settings are selected, the switch position shown above represents the required modes.

Flight mode:

Off: When the mode is activated, SR6 will transmit the received commands produced by the transmitter to the model without compensating.

Stabilization: When the model is activated, SR6 will compensate with external forces (wind) as soon as receiving commands from the transmitter. This function is used to enhance the stability of the model on three axes (Pitch, Roll, Roll). CH9 could be used to adjust gyro gain by assigning a knob or a slider, changing the sensitivity of the counteracting signal produced by the internal three-asis gyroscope.

Automatic level: When the mode is activated, SR6 will make the model return to level orientation with internal three-axis accelerometer and three-axis gyroscope on AIL and ELE channels after the sticks being released to neutral. RUD channel works in stabilization mode only.

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Hover: When the mode is activated, SR6 will make the nose of the model straight up with internal three-axis accelerometer and three-axis gyroscope on RUD and ELE channels (ELE and RUD inputs are not required). Under this mode, AIL is used to control the rotation of the model and THR adjust the altitude. AIL channel works in stabilization mode only.
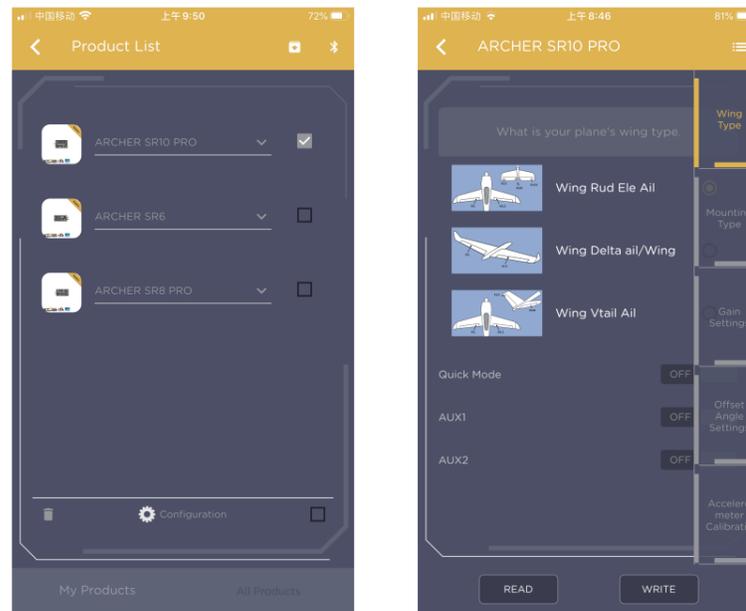
Knife-egde mode: When the mode is activated, SR6 will roll the plane on a certain side (wing points up) with internal three-axis accelerometer and three-axis gyroscope on RUD and AIL channels.Thus, AIL inputs are not required. While the mode steering is done with ELE, altitude will be maintained with THR/RUD. ELE channel operates in stabilization mode only.

Configuration

Methods: APP configuration
　　　　 FrSky radio configuration
　　　　 PC configuration software (FrSky STK usb updater)
Configuration parameters: Wing type, mounting type, gain setting, offset angle setting, accelerometer calibration.

APP(IOS/Android) configuration:
- Connect the SR6 to the App with AirLink S.
The menu screen is displayed below (For SR10 PRO as an example):

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ARCHER SR10 PRO — What is your receiver's mounting type?
- Level
- Bottom
- Right Up
- Left Up

READ   WRITE

ARCHER SR10 PRO — Gain Settings

COMPENSATION DIRECTION
- AIL Reverse
- ELE Reverse
- RUD Reverse
- AIL2 Reverse
- ELE2 Reverse

STABILIZE GAIN

READ   WRITE

ARCHER SR10 PRO — Offset Angle Settings

OFFSET ANGLE AUTO LEVEL
- Aileron   0
- Elevator   0

OFFSET ANGLE OF HOVER
- Elevator   0
- Rudder   0

OFFSET ANGLE OF KNIFE-EDGE

READ   WRITE

ARCHER SR10 PRO — Accelerometer Calibration

Select the ARCHER SR10 PRO's direction want to calibrate. Press the 'CALIBRATION' button. Then place your device as shown and hold on for a few seconds.

The calibration will finish after the light fla several times.

CALIBRATION

READ   WRITE

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You can download the app and learn more about how to use it.

FrSky radio configuration:
- Copy the STAB RX.Lua&STAB RX Cali.Lua files to the SCRIPTS/TOOLS on the SD card of the transmitter.
- Run the files.

FrSky STAB RX

```
V2.01              1/2  STAB RX [====]   2/2
Wing type        Normal  Stab functions   Enable
Mounting type      Horz  Quick Mode:     Disable
Pins toward tail         CH5 mode           AUX1
Label is facing the sky  CH6 mode           AUX2
                         AIL direction    Normal
                         ELE direction    Normal
                         RUD direction    Invers
```

FrSky STAB RX Cali

```
STAB RX Calibration  2/2   STAB RX Calibration  2/2   STAB RX Calibration  2/2   STAB RX Calibration  2/2
Place the STAB RX as foll  Place the STAB RX as foll  Place the STAB RX as foll  Place the STAB RX as foll
Label up.       X:0.00     Label down.    X:-0.01     Pins Up.       X:0.98     Pins Down.     X:-0.99
                Y:0.00                    Y:0.00                     Y:0.00                    Y:0.00
                Z:-1.06                   Z:1.06                     Z:0.07                    Z:0.11
[Enter] to validate        [Enter] to validate        [Enter] to validate        [Enter] to validate
```

```
STAB RX Calibration  2/2   STAB RX Calibration  2/2   STAB RX Calibration  2/2
Place the STAB RX as foll  Place the STAB RX as foll  Calibration completed
Label facing you X:-0.01   Label facing you X:0.00
Pins Right       Y:-1.00   Pins Left        Y:1.00
                 Z:0.01                     Z:-0.03
[Enter] to validate        [Enter] to validate        Press [Exit] when ready
```
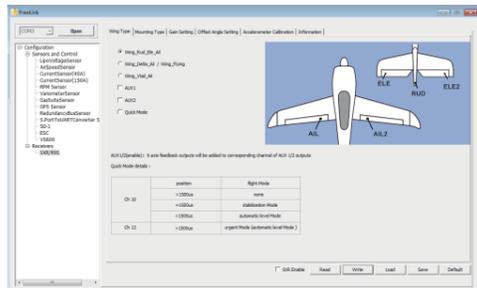
PC configuration software:
- Connect SR6 as shown below to the FrSky STK usb adapter, and plug it into PC.
- Run the Freelink.exe and access the home page.
- Press open to connect with SR6.
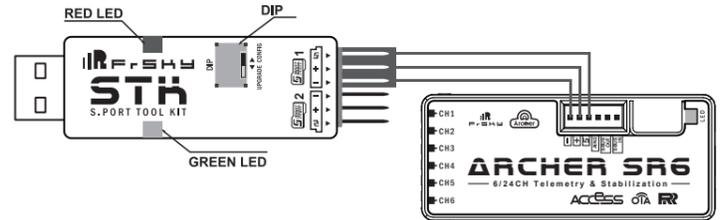
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**The menu screen on the home page is displayed below:**

1. Open: Gives the PC software access to SR8 PRO configuration data.
2. Read: Retrieves the stored SR8 PRO data to be edited in the PC software.
3. Write: Stores the setted data on SR8 PRO.
4. Load: restore the settings into the file you saved before.
5. Save: save all settings to one file.
6. Default: Returns all PC software settings to the factory defaults.

Configuration parameters

The configuration parameters are listed on the top of the interface: Wing type, Mounting Type, Gain Setting, Offset Angle Setting, Accelerometer Calibration
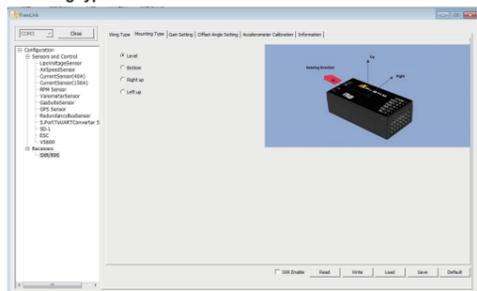
Wing Type
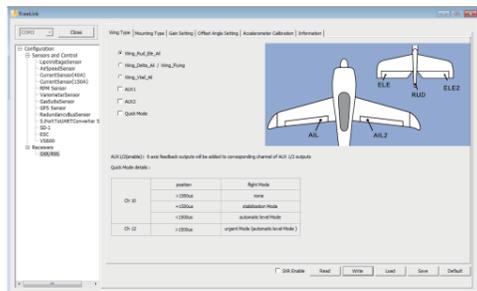
Options of wing types: Wing_Rud_Ele_Ail——conventional model
Wing_Delta_Ail/Wing_Flying—— Delta/Flying wing
Wing_Vtail_Ail——V-Tail

AUX1: If selected, AIL2 function will be disabled on CH5   AUX2: If selected, ELE2 function will be disabled on CH6
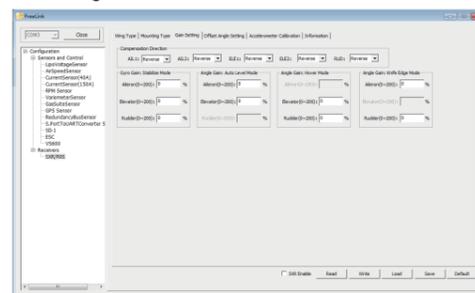
Mounting type

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Level, Buttom, Right and Left up options are available.

Gain Setting

The first part

Compensation direction: selecting the travel direction of AIL, AIL2, ELE, ELE2 and RUD. "+" means positive and "−" means negative.

The second part

Gyro gain: Stabilization Mode

The gain setting under stabilization mode chould be set on the channels related to aileron, elevator and rudder.

Angle Gain: Auto Level Mode

The gain setting under automatic level mode could be set on the channels related to aileron and elevator.

Angle Gain: Hover Mode

The gain setting under hover mode could be set on the channels related to elevator and rudder.

Angle Gain: Knife Edge Mode

The gain setting under knife edge mode could be set on the channels related to aileron and rudder.

> Note: Optional range is from 0 to 200%. 0, 1, 2 refers to 0%, 100% and 200% respectively.

Offset Angle Setting

Due to the possible errors in minor installation and calibration, the function is designed to adjust the attitude of the model. Thus, the user could achieve the best orientation when Auto Level, Hover mode and Knife-edge mode is activated.
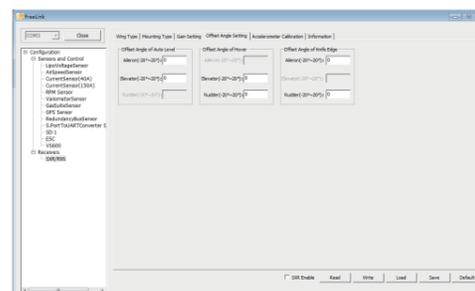
Offset Angle of Auto Level

The angle of roll and pitch could be adjusted on the channels related to aileron and elevator. Straight and Level flight could be realized.

Offset Angle of Hover

The nose-up angle could be adjusted on the channels related to aileron and elevator. Stationary hover could be realized in calm weather.

Offset Angle of Knife Edge

The angle of aileron and rudder could be adjusted on the related channels. Straight and level knif-edge flight could be realized.

> Note: Optional range is from -20° to 20°.

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Accelerometer Calibration
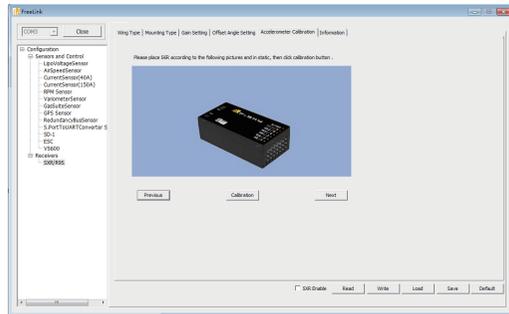
The positive and negative values related to three-axis gyroscope and accelerometer make a total of six values that need to be acquired. Please follow the on-screen instructions.

• Click the "Calibration" button and wait until the YELLOW LED flashing, indicating the calibration on this orientation has been completed.
• Repeat the above step five times (remaining 5 dimensions). Placing SR6 in the required orientation, ensure all values (X, Y, Z, Mod) are displaying 1.000 with the deviation of ±0.1.
• Press "Write" to save the data on SR6 when done.

Inspection of flight attitude

To ensure flight safety, checking the compensation direction of the model is strongly recommended.
Activating auto level mode will produce a strong deflection on AIL and ELE, which is used to check the response of aileron and elevator. Also, activating Knife-edge and Hover mode will have the same reaction on the rudder.
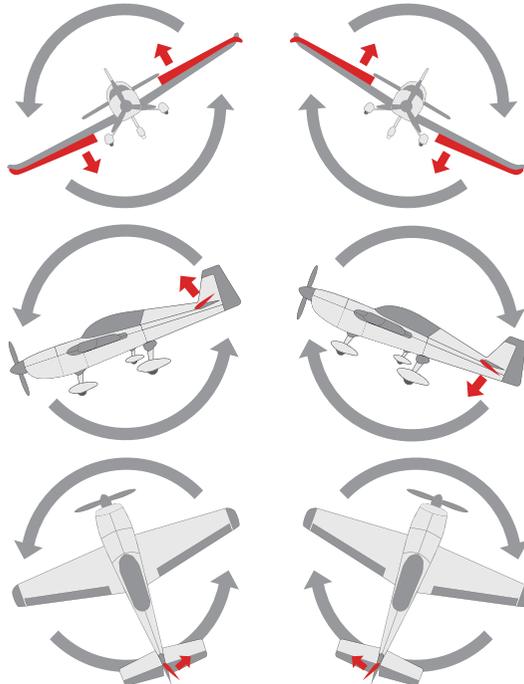

When the plane is rotated left or right (Roll), ailerons should have the correcting actions as illustrated above.

When the plane is rotated up or down (Pitch), elevators should have the correcting actions as illustrated above.

When the plane is rotated to left or right (Yaw), rudders should have the correcting actions as illustrated above.

⚠ **After changing the compensation direction, make sure to check it again on the actual model.**

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Note: If the compensation direction is incorrect, please reverse the corresponding channel as illustrated below.
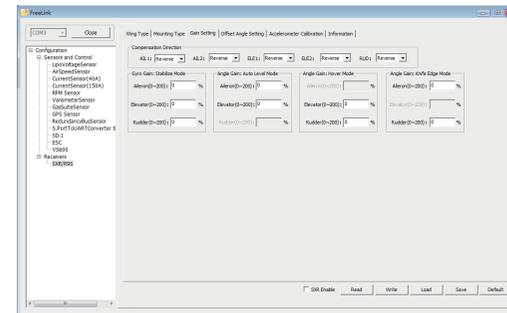
Self-check

Attentions

• Before self-check, please place the model on the groud (level surface).
• When the model is flying, aerodynamic balance is more important than level attitude, which results in that the model flys at a constant altitude with the nose slightly pointing up at low speed. To avoid the nose-diving of the model at high air speed, the user must insure that the model is placed at a level or slightly-nose-up attitude during self-check.
• Always install SR6 straight and level in the model. If required, PC software could be used to adjust the angle of attack with the purpose of realizing the required setting. If the values set by the user is bigger than average ones, we advise to recheck the installation orientation of SR6.

Steps (Different from the SXR/R9 STAB OTA/RB series)

• Turn on the transmitter and ensure that Ail (CH1), ELE (CH2), RUD (CH4), AIL 2(CH5) and ELE (CH6) are in the neutral position.
• Power on the model and start SR6 self-check. Ensure the auto level angle of the gyro and the neutral position of gimbal. Please don't touch/move the model until self-check finishes, or it may corrupt the calibration settings created during the procedure.
• Move the three-position sticks bound to CH12 three times in 2 seconds (up, mid, down). Then the BLUE LED will turn on. Waiting the 8~9 seconds, the LED will flash and move the sticks bound to CH1~CH6(except the CH related to Thr) in 7~8 seconds , the corresponding parts on the model will move . At last, the BLUE LED will turn off,the corresponding parts on the model will move automatically , indicating self-check has completed, In the end, SR6 will save the zero points of the gyro, auto level angle, gimbal neutral position and servo channel limits.
• Move the sticks bound to CH1~CH6 (except the CH related to Thr) and check the channel output limits, ensuring that the signal outputs of SR6 will not damage the corresponding parts on the model.

🚫 **Never operate the stick bound to CH12 during flight session. If so, it will trigger self-check and may cause the crash of the model.**

Setup

• Calibrate SR6 with the Lua.or Freelink App or the PC software and install it into the model. Insure the settings of wing type and mounting type are identical to the intended model installation.
• Turn on the transmitter and reduce the value of servo endpoint setting. Ensure self-check mode will not damage the corresponding parts on the model.
• Assign a knob/slider to CH9, then real-time gain adjustment capabilities of SR6 will be activated.
• Assign three-position switches to CH10 and CH11 with the purpose of switching available flight modes.
• Power on the model and check the deflection direction of each related parts on the model. Make sure the switch assigned to flight modes is correct and the compensation direction of the gyro is set as intended on AIL, RUD and ELE.
• Make a self-check for SR6 if necessary. Disconnecting the power on SR6 will not lose the set parameters.

🚫 **Under identical operating conditions, the value of each channel produced by the assigned switch in FrOS are opposite to that in OpenTX. For exmaple, SW Up in FrOS is equal to SW Down in OpenTX.**

FrSky is continuously adding features and improvements to our products. To get the most from your product, please check the download section of the FrSky website www.frsky-rc.com for the latest update firmware and manuals

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