Introduction
Thank you for purchasing FrSky R9 STAB OTA telemetry receiver it is a 900MHz/868MHz frequency range and stabilization receiver with a full 3-axis gyroscope and 3-axis accelerometer in order to fully enjoy the benefits of this system, please read the instruction manual carefully and set up the device as described below.

Overview

Features

1. ACCESS Protocol and supports OTA function 900MHz/868MHz long-range telemetry
2. Built-in 3-axis gyroscope and 3-axis accelerometer
3. Support 5-port (configurable in OpenTex - FROK)
4. With the FrSky ACCESS protocol, the transmitter/transmitter module can bind receiver without using the button.
5.アクセS Serial Port could be used to update, edit parameter settings via FrSky STK PC tool and connect with telemetry sensors.

Specifications

- Dimensions: 45.7x30.51x9.0mm
- Weight: 10g
- Number of channels: 16 (CH1-CH16)
- Operating Current: 140mA@7.4V

Channels

CH1: Aileron CH2: Elevator CH3: Throttle CH4: Rudders CH5: Aileron CH6: Elevator CH7: Rudders CH8: Accelerometer

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Gyro gain adjustment of CH9: When the value of CH9 is in the center, the gain is zero. The gain increases as the value get bigger.

Note: CH6-CH9 are not marked on the diagram.

Methods: APP configuration

Connect R9 STAB OTA as shown below to the FrSky STK usb adapter, and plug it into PC

Connect the R9 STAB OTA to the App with AirLink S.

In the APP, choose the Quick Mode.

1. Choose the Auto-Level mode, check the model servo feedback.

2. Choose the Manual mode, check servo feedback on transmitter.

Configuration

The available flight models can be assigned to CH10 with a three-position switch:

- Stabilization
- Auto Level
- Off

Flight mode:

- Hover:
  - Thr/RUD channel works in stabilization mode only.
- Automatic level:
  - ELE channel operates in stabilization mode only.
- Off:
  - ELE channel is disabled.

Delta wing / V-tail

The available flight models can be assigned to CH10 with a three-position switch:

- Stabilization
- Auto Level
- Off

Flight mode:

- Hover:
  - AIL and ELE channel works in stabilization mode only.
- Stabilization
  - AIL and ELE channel works in stabilization mode only.
- Off:
  - AIL and ELE channel is disabled.

Quick Mode

Note: The default mode of R9 STAB OTA is a Quick Mode. When re-flashing firmware of R9 STAB OTA or replacing with a new one, the project will be reset.

- If Quick mode is applied, there is no Switch Edge or (3G) Hover mode.
- CH10 is not used when using Quick Mode.

APP(iOS/Android) configuration:

- Connect the R9 STAB OTA to the App with AirLink S.

The menu screen on the home page is displayed below:

- Click the R9 STAB OTA-Lua file on the SD card of the transmitter.
- Press the FrSky STK usb adapter and access the home page.
- Press open to connect with R9 STAB OTA.

Configuration parameters:

- The configuration parameters are listed on the top of the interface: Wing type, Mounting Type, Gain Setting, Offset Angle Setting, Accelerometer Calibration.

Failsafe

The transmitter will overflow [BIND], the GREEN LED will flash, and RED LED will be off, indicating something is wrong.

Setup your model and receiver step by step

Follow the step below to finish the Registration & binding procedure:

1.1 For Taranis X-Lite Pro and R9M Lite Pro as an example, turn on the transmitter, go to the MENU-MODEL SETUP-PAGE 2, choose External RF-Mode R9MLP ACCESS, then select [Reg].

2. Connect the battery to the receiver while holding the button on the receiver.

3. Turn on the receiver.

4. Press the button to select the receiver [Bind].

5. Connect the battery to the receiver, the GREEN LED on the receiver will be on, indicating into the [Bind] status. Select [ENTER] on the transmitter. The RED LED and GREEN LED on the receiver will flash, and the transmitter displays [Reg] status.

6. Default: Returns all PC software settings to the factory defaults.

Step 1: Connect your server following the channel list according to the model.

Step 2: Set the model name before the model name.

Step 3: Choose the Wing Type via the configuration tool (R9 STAB OTA-Lua/LuaFileLink APP/LuaFile.exe).

Step 4: Choose the AUTO LEVEL mode, check the model servo feedback.

Step 5: Choose the manual mode, check servo feedback on transmitter.

Quick Mode

The model types can be enabled via R9 STAB OTA Config or R9 STAB OTA-Lua. If required, R9 STAB OTA could be used as a standard 8-channel receiver.

Conventional model

- Stabilization
  - Off
- Auto-Level
  - Off
- Hover
  - Off

Delta wings / Flying wings / V-tail

The available flight models can be assigned to CH11 with a three-position switch:

- Auto Level
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Gain Setting
Level, Bottom, Right and Left up-options are available.

Mounting type
Wing Type
Options of wing type:
- Wing_Rud_Ele_Ail——conventional model
- Wing_Rud_Ele_Dial_Flying——Delta flying wing
- Wing_Vah_Ail——V tail

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

Wing_Delta_Ail/Wing_Flying——Delta/Flying wing
Options of wing types:
- Wing_Rud_Ele_Ail——conventional model
- Wing_Rud_Ele_Dial——Delta flying wing
- Wing_Vah——V tail

ACCU-Gyro Calibration
The positive and negative values related to three-axis gyroscope and accelerometer make a total of six values that need to be acquired.

Z, MOD) are displaying 1.000 with the deviation of ±0.1.

Inspection of flight attitude
Press “Write” to save the data on R9 STAB OTA when done.

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

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

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

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.

The positive and negative values related to three-axis gyroscope and accelerometer make a total of six values that need to be acquired.

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

• The second part
• Gyro gain: Stabilization Mode
• The gain setting under stabilization mode should be set on the channels related to aileron, 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 100%, 1.1 refers to 9%, 100% and 200% respectively.

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 Knife-edge flight could be realized.

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

Self-check
Attention:
- Before self-check, please place the model on the ground (level surface).
- When the models is flying, aerodynamic balance is more important than level attitude, which results in that the model flies at a constant attitude with the nose slightly pointing up or low speed. To avoid the nose-downing of the model at high air speed, the user must ensure that the model is placed at a level or slightly nose-up attitude during self-check.
- Always install SR10 PRO 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 SR10 PRO.

Steps (Different from the SDR10 OTA60 series)
1. Turn on the transmitter and ensure that all (CH1), ELE, (CH2), RUD, (CH3), AIL, (CH4) and ELE (CH5) are in the neutral position.
2. Power on the model and start SR10 PRO self-check. Ensure the auto level angle of the gyro and the neutral position of pitch. Please don’t touch/move the model until self-check finishes.
3. After self-check finished, or if it may correct the calibration settings created during the procedure.
4. For OPEN TX system, please download LUA SCRIPT from Frsky official website, then click TOOLS/ Frsky SxR-R9S/ Self Check on the screen.
5. For ETHOS system, please click Device Config/Self check/Calibrate Check (CH). Then the BLUE LED will turn on. Waiting the 5-9 seconds, the LED will flash and move the value bound to CH1-Ch3 (except the CH-related to Throt) in 5-7 seconds, the corresponding parts of the model will move. At last, the BLUE LED will turn off the corresponding parts of the model will move automatically indicating self-check has completed. In the end, SR10 PRO will save the zero point of the gyro, auto level angle, gimbals neutral position and servos channel limits.
6. Move the sticks bound to CH1-CH4 (except the CH-related to Throt) and check the channel output limits, ensuring that the signal outputs of SR10 PRO will not damage the corresponding parts on the model.

- Never operate the stick bound to CH2 during flight session. If so, it will trigger self-check and may cause the crash of the model.

Setup:
- Calibrate SR10 PRO with the Lua or Freestyle App and the PC software and install it into the model. Ensure the settings of wing type and mounting type are identical to the intended installation model.
- Power on the model and check the direction deflection of each related parts on the model. Make sure the switch assigned to flight modes is correct and the compensation directions of the gyro is set as intended on AL, RUD, and ELE.
- Make a self-check for SR10 PRO is necessary. Disabling the power on SR10 PRO will not lose the set parameters.

- Under identical operating conditions, the value of each channel produced by the assigned switch in F/C60s are opposite to that in OpenTX. For example, SW Up in F/C60s is equal to SW Down in OpenTX.

Frsky is continually adding features and improvements to our products. To get the most from your product, please check the downloadable section of the Frsky website www.frsky.com for the latest firmware and manual.