Instruction Manual for FrSky ARCHER SR8 PRO Receiver Version 1.0

Introduction
The Archer SR8 PRO are gyro-stabilized receivers with a built-in 3-axis gyroscope and 3-axis accelerometer. They have 8 high precision PWM channel outputs and feature multiple flight modes and configuration methods. They support full range signal strength with dual detectable outputs, it guarantees optimal extreme performance and maximum range. In addition to this, the SR8 PRO 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 increase range and telemetry performance, the PRO range now supports more functions likeconfigurable telemetry power & Data Port switching and FLR output. Additional valuable features are under development to unlock the true potential of the ACCESS protocol.

Overview

![Image of Archer SR8 PRO](https://via.placeholder.com/150)

Table: Green LED (State of Calibration of Accelerometer)

<table>
<thead>
<tr>
<th>Channel</th>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>CH1</td>
<td>0</td>
<td>Enter calibration mode</td>
</tr>
<tr>
<td>CH2</td>
<td>1</td>
<td>Exit calibration mode</td>
</tr>
<tr>
<td>CH3</td>
<td>2</td>
<td>Start calibration</td>
</tr>
<tr>
<td>CH4</td>
<td>3</td>
<td>Stop calibration</td>
</tr>
<tr>
<td>CH5</td>
<td>4</td>
<td>Check calibration</td>
</tr>
<tr>
<td>CH6</td>
<td>5</td>
<td>Clear calibration</td>
</tr>
</tbody>
</table>

Table: Red LED (State of Self-check in)

<table>
<thead>
<tr>
<th>Channel</th>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>CH1</td>
<td>0</td>
<td>Enter self-check mode</td>
</tr>
<tr>
<td>CH2</td>
<td>1</td>
<td>Exit self-check mode</td>
</tr>
<tr>
<td>CH3</td>
<td>2</td>
<td>Start self-check</td>
</tr>
<tr>
<td>CH4</td>
<td>3</td>
<td>Stop self-check</td>
</tr>
<tr>
<td>CH5</td>
<td>4</td>
<td>Check self-check</td>
</tr>
<tr>
<td>CH6</td>
<td>5</td>
<td>Clear self-check</td>
</tr>
</tbody>
</table>

Table: Blue LED (State of Self-check out)

<table>
<thead>
<tr>
<th>Channel</th>
<th>Value</th>
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</tr>
</thead>
<tbody>
<tr>
<td>CH1</td>
<td>0</td>
<td>Enter self-check mode</td>
</tr>
<tr>
<td>CH2</td>
<td>1</td>
<td>Exit self-check mode</td>
</tr>
<tr>
<td>CH3</td>
<td>2</td>
<td>Start self-check</td>
</tr>
<tr>
<td>CH4</td>
<td>3</td>
<td>Stop self-check</td>
</tr>
<tr>
<td>CH5</td>
<td>4</td>
<td>Check self-check</td>
</tr>
<tr>
<td>CH6</td>
<td>5</td>
<td>Clear self-check</td>
</tr>
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</table>

Table: Brief LED (State of Calibration of Accelerometer)

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<td>Clear calibration</td>
</tr>
</tbody>
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Table: Flashing LED (State of Self-check in)

<table>
<thead>
<tr>
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</tr>
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<td>3</td>
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</tr>
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</tr>
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Table: Flash LED (State of Self-check out)

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Specifications

### Number of Channels

- **S.Port/F.Port switching and FLR output.** Additional valuable features are under development to unlock the true potential of the ACCESS protocol.

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

### Number of Channels

- 8 high-precision PWM Channels
- Receiver redundancy
- ACCESS Protocol with Over The Air (OTA)
- Supports signal redundancy (SBUS IN)
- Anti-interference in spark-ignition
-刀-edge stabilization
- Multi-channel reconfiguration
- Supports signal redundancy (SBUS IN)
- Differences from ACCESS:S8R receivers, the SBUS IN signal can be adjusted through the STAB module of S8R PRO when the STAB function is enabled.

### Channels

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#### Corresponding Parts on the model

- AIL: Banked Stabilization
- RUD: Roll Stabilization
- THR: Throttle

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#### Corresponding Parts on the model

- AIL: Banked Stabilization
- RUD: Roll Stabilization
- THR: Throttle

#### Full name

- CH1: User-defined
- CH2: User-defined
- CH3: No mark
- CH4: No mark
- CH5: No mark
- CH6: No mark

#### Factory setting

- CH1: Off
- CH2: Off
- CH3: Off
- CH4: Off
- CH5: Off
- CH6: Off

#### Gyro gain adjustment

- CH1: When the value of CH1 is in the center, the gain is zero. The gain ranges from the value of CH1 is added, the gain increases from 100%, the gain decreases to 0

#### Methods

- APP configuration
- PC configuration software (FrSky STK usb updater)

#### Working State

<table>
<thead>
<tr>
<th>Flight mode</th>
<th>Stabilization</th>
<th>Hover</th>
<th>Knife-Edge</th>
</tr>
</thead>
<tbody>
<tr>
<td>CH1 (on SBUS)</td>
<td>(CH1 CH2 SW Down)</td>
<td>(CH1 CH2 SW Up)</td>
<td>CH1 SW/Down</td>
</tr>
<tr>
<td>CH2 (on SBUS)</td>
<td>(CH2 CH3 SW Down)</td>
<td>(CH2 CH3 SW Up)</td>
<td>CH2 SW/Down</td>
</tr>
</tbody>
</table>

#### Delta wing & Flying wing & V-tail

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

#### Flight mode

- CH10: (CH1 CH2 SW Down) | (CH1 CH2 SW Up) | CH1 SW/Down
- CH11: (CH2 CH3 SW Down) | (CH2 CH3 SW Up) | CH2 SW/Down

#### Delta wing & Flying wing & V-tail

- The available flight modes can be assigned to CH10 with a three-position switch.

#### Flight mode

- CH10: (CH1 CH2 SW Down) | (CH1 CH2 SW Up) | CH1 SW/Down
- CH11: (CH2 CH3 SW Down) | (CH2 CH3 SW Up) | CH2 SW/Down

#### Hover

- Ail: When the mode is activated, SR8 PRO 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 attitude. CH1 and CH2 channels work in stabilization mode only.

#### Knife-edge mode

- When the mode is activated, SR8 PRO will roll the plane on a certain side (wing points up) with internal three-axis accelerometer and three-axis gyroscope on RUD and CH1 channels. CH1, CH2, CH3, CH4, CH5, CH6, CH7, CH8 inputs are not required. While the mode switching is done when CH1 and CH2 switches are set to position 1 (on) and 2 (off).

#### Configuration

- Methods: APP configuration
- PC configuration software (FrSky STK usb updater)

#### APP(iOS)/Android configuration

- Connect the S8R PRO to the App with A/i in S.
- The menu screen is displayed below (For CH10/CH11 as an example):

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**Note:** CH1-CH2 are not marked on the diagram.

**CH1 Edit — Setting CH1 at Weight 10 and offsetting 60, the assigned pot/slider will work normally.**

**Registration & Automatic binding (Smart Match)**

Follow the steps below to bind the REGISTRATION & binding protocol.

1. Turn the transmitter/receiver into Reg mode.
2. Choose the Wireless bind type (SBUS In).
3. 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].
4. Turn off the receiver.
5. Move the cursor to select the receiver [Bind].
6. Connect the battery to the receiver, the RED LED will flash, indicating into the [Bind] status. Select the RX, the GREEN LED will keep it on, and the transmitter displays [Bind succeeded].
7. The transmitter exit [Bind], GREEN LED will keep it on, 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 (as shown).

1. Connect your servos follow the channel list according to your model.
2. Set your radio follow the channel list.
3. Choose the Wing type via the configuration tool (STAB RX Lua/FreeLink APP/FreeLink.exe).
4. Choose the AUTO LEVEL mode, check the model zero feedback via transmitter.
5. Choose the manual mode, check servo feedback via transmitter.

#### Quick Mode

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

#### Models

**Conventional Model**

- **Pitch Mode**
  - Manual Leveling
  - Data Wing
  - stabilization

- **Hover Mode**
  - Manual Leveling
  - Data Wing
  - stabilization

- **Conventional Model**
  - **Pitch Mode**
    - Manual Leveling
    - Data Wing
    - stabilization

- **Hover Mode**
  - Manual Leveling
  - Data Wing
  - stabilization

- **Conventional Model**
  - **Pitch Mode**
    - Manual Leveling
    - Data Wing
    - stabilization

- **Hover Mode**
  - Manual Leveling
  - Data Wing
  - stabilization

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Mounting 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

Configuration parameters
- Wing type
- Mounting type
- Gain setting
- Offset angle setting
- Accelerometer calibration

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. Save: saves all settings to one file.
4. Load: restores the settings from the file you saved before.
5. Default: Returns all PC software settings to the factory defaults.

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

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

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

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 could be set on the channels related to aileron, elevator and rudder.

Angle Gain: Hover Mode
The gain setting under hover mode could be set on the channels related to 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.

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 meter 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 available options:
- Level, Bottom, Right and Left up options are available.
- Gain setting

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

You can download the app and learn more about how to use it.
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 SR8 PRO 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 SR8 PRO when done.

Self-check

Before self-check, please place the model on the ground (level surface).

- Power on the model and check the deflection direction of each related parts on the model. Make sure the switch assigned to flight mode is correct and the compensation direction of the gyro is set as intended on AIL, RUD and ELE.
- Turn on the transmitter and ensure that Ail (CH1), ELE (CH2), RUD (CH4), AIL 2(CH5) and ELE (CH6) are in the neutral position.
- 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 SR10 PRO will be activated.
- Assign three-position switches to CH10 and CH11 with the purpose of switching available flight modes.
- Assign three-position switches to CH12 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 Freelink App or the PC software and install it into the model. Ensure the settings of wing type and mounting type are identical to the intended model installation.
- 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.
- 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.

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

In the end, SR10 PRO will save the zero points of the gyro, auto level angle, gimbal neutral position and servo channel limits.

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.