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FrSky SR12+

FrSky Archer Plus SR12+ Receiver Instruction Manual

Model: SR12+

1. INTRODUCTION

The FrSky Archer Plus SR12+ is an advanced gyro-stabilized receiver designed for remote control aircraft. It features a built-in 3-axis gyroscope and 3-axis accelerometer, offering multiple flight modes for enhanced control and stability. This receiver is part of the Archer Plus series, which includes improved anti-RF-interference capabilities and supports both ACCESS and ACCST D16 modes.

Key features include 12 configurable channel ports, dual detachable antennas for full-range signal, SBUS in redundancy, XT30 dual power input, and FBUS protocol support for telemetry devices. The integrated Black-Box function records basic flight data for analysis.

2. PRODUCT OVERVIEW

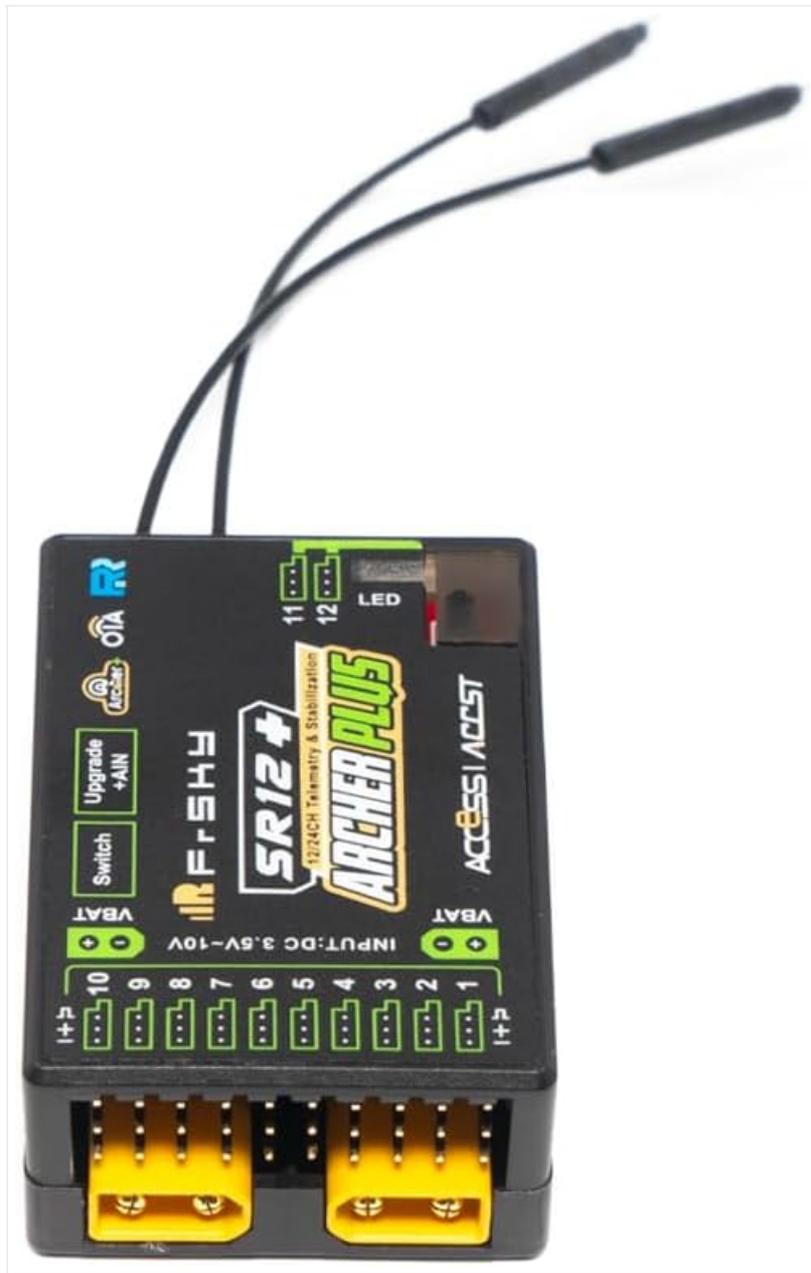


Image 2.1: Front view of the FrSky Archer Plus SR12+ Receiver, showing the antenna connections and port labels.



Image 2.2: Angled view of the FrSky Archer Plus SR12+ Receiver, highlighting the XT30 power input connectors.

LED State

Green LED	Red LED	Status
On	On	Register
Flash	Flash	Register successfully
On	On	Bind
On	Off	Bind successfully
On	Off	In working
Off	On	Failsafe

Yellow LED	State (Calibration of Accelerometer)	Blue LED	State (Self-check)
ON	exceeding limits (0.9G,1.1G)	ON	Center detection of channel in progress
OFF	In normal status	Flashing	Max & Min of channels in detecting
Flashing	Calibration is completed	OFF	Self-check is completed

Image 2.3: Detailed diagram of the SR12+ receiver, illustrating port functions and dimensions.

2.1. LED Indicator States

The receiver features LED indicators to communicate its current status. Refer to the table below for a detailed explanation of each state.



Image 2.4: Table detailing the meaning of different Green, Red, Yellow, and Blue LED states for the SR12+ receiver.

3. SETUP AND INSTALLATION

3.1. Binding Process

The Archer Plus SR12+ receiver supports both ACCESS and ACCST D16 modes. The RF protocol is automatically matched during the binding process with your FrSky 2.4GHz compatible transmitter. Follow your transmitter's manual for specific binding instructions. Ensure the receiver's LED indicates successful binding (Green ON, Red OFF).



Image 3.1: Example of a transmitter's RF System menu, showing options for binding and range check.

3.2. Power Connection

The SR12+ receiver utilizes dual XT30 plugs for power input, providing a secure and efficient power supply. Connect your 2S Li-Batteries (recommended operating voltage range: 3.5V - 10V) to these ports. Ensure correct polarity.



Image 3.2: Close-up view of the dual XT30 power input connectors on the SR12+ receiver.

3.3. Antenna Installation

The receiver comes with dual detachable IPEX1 antennas. Connect them securely to the designated ports on the receiver. Position the antennas at a 90-degree angle to each other for optimal signal reception and range.



Image 3.3: The SR12+ receiver shown with its dual detachable antennas and other connection wires.

3.4. Channel Configuration

The SR12+ features 12 configurable channel ports. Each port can be assigned as PWM, SBUS, FBUS, or S.Port. In ACCESS mode, CP1 can also function as SBUS In for redundancy. Refer to your transmitter's ETHOS system or similar interface for channel assignment.

- **CP1:** PWM / SBUS Out / FBUS / S.Port / SBUS In
- **CP2-12:** PWM / SBUS Out / FBUS / S.Port
- *Note:* In ACCST mode, SBUS Out is assigned on Pin11 & S.Port is on Pin12.

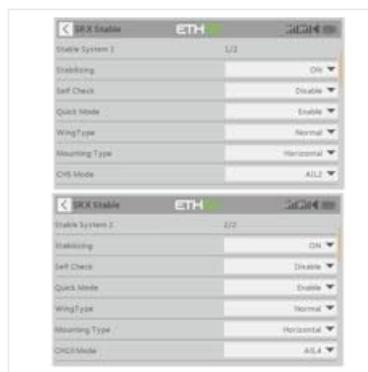


Image 3.4: Transmitter interface showing options for assigning channel port functions (PWM, SBUS, FBUS, S.Port).

3.5. Signal Redundancy

For enhanced reliability, the SR12+ can be used as a primary receiver in a redundant setup. Configure Channel Port 1 as SBUS In and connect it to the SBUS Out port of another compatible FrSky receiver.

4. OPERATION

4.1. Flight Modes

The SR12+ receiver features a built-in 3-axis gyroscope and 3-axis accelerometer, enabling multiple flight modes:

- **Auto-level:** Automatically levels the aircraft.
- **Stabilization:** Provides enhanced stability during flight.
- **Knife-Edge:** Assists in maintaining knife-edge flight.
- The stabilization mode includes 5 additional stabilization channels, allowing for precise pin mapping in various flight modes.



Image 4.1: Transmitter interface showing SRX Stable settings, including options for stabilization, self-check, wing type, and mounting type.

4.2. Telemetry and FBUS Protocol

The FBUS protocol allows seamless pairing with multiple telemetry devices (e.g., XACT servos, ADV Sensors), simplifying setup and providing real-time data. The receiver supports full control range with telemetry via FBUS / S.Port.

4.3. Black-Box Function

The integrated Black-Box function records basic flight data, such as power and signal-related information. This data can be retrieved and analyzed for performance monitoring and troubleshooting.



Image 4.2: Transmitter interface showing the "Flight Data Record" option and various reset/record statuses.

4.4. Power Switch Function

The SR12+ includes a built-in power switch function. A dedicated socket allows connection of an external switch panel (optional) to control the receiver's power. This feature, combined with current overload wires on the channel ports, helps safeguard connected devices.

5. MAINTENANCE

5.1. Firmware Updates (OTA)

The SR12+ supports Over-The-Air (OTA) firmware updates. This allows for convenient updates without physical connection, ensuring your receiver always has the latest features and improvements. Refer to the FrSky website or your transmitter's manual for OTA update procedures.

5.2. Antenna Care

Ensure the detachable antennas are always securely connected and free from damage. Regularly inspect them for any kinks or cuts in the wire, which can affect signal performance. Proper antenna placement is crucial for maintaining optimal range and signal strength.

6. TROUBLESHOOTING

6.1. LED Indicator Troubleshooting

Refer to the LED State table (Image 2.4) in the Product Overview section to diagnose common issues based on the receiver's LED behavior. For example, a Red LED ON indicates Failsafe mode.

6.2. Signal Issues

- **Poor Range:** Check antenna placement and ensure they are not obstructed or damaged. Perform a range check using your transmitter's functions.
- **Interference:** The Archer Plus series features enhanced anti-RF-interference capabilities. However, ensure your setup avoids close proximity to high-power electrical components or other sources of electromagnetic interference.
- **Failsafe Activation:** If the receiver enters Failsafe mode (Red LED ON), it indicates a loss of signal from the transmitter. Verify transmitter power, range, and antenna connections on both the transmitter and receiver.



Image 6.1: Transmitter interface displaying range check results, showing 2.4G RX and RSSI values.

7. SPECIFICATIONS

Feature	Specification
Dimensions (L×W×H)	48.5×33×17.9mm
Weight	21.5g
Operating Voltage Range	3.5 - 10V (Recommended 2S Li-Batteries)

Operating Current	<115mA@5V
Continuous Current (power device)	≤20A
Instantaneous Current (power device)	≤40A
Voltage Measurement Range via AIN2	0-35V (Battery Voltage Divider Ratio: 1:10)
Antenna Connector	IPEX1
Power Input Connector	Dual XT30
Compatibility	FrSky 2.4GHz ACCESS / ACCST D16 capable transmitters
Configurable Channel Ports	12 (PWM, SBUS, FBUS, S.Port)

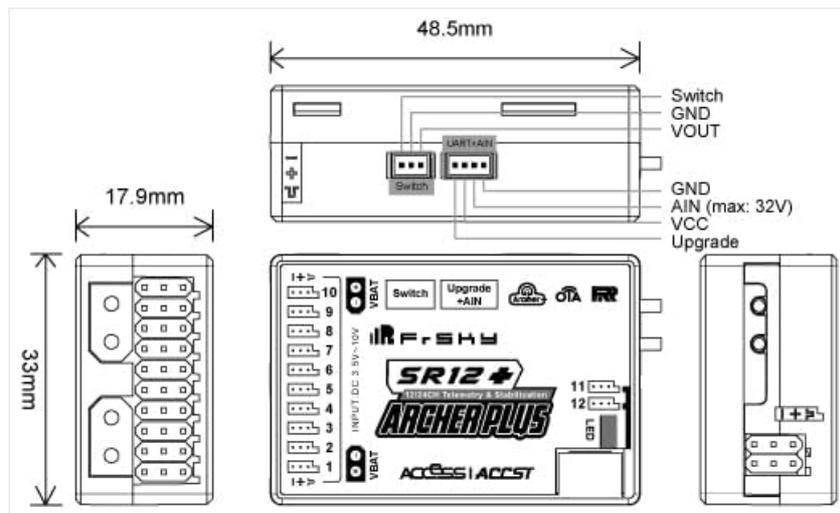


Image 7.1: Technical drawing showing the dimensions and port layout of the SR12+ receiver.