Thank you for purchasing our products. MSR66A is a mini 6-channel 2.4GHz receiver integrated with 6-axis gyro and stabilizer. It is suitable for normal wing, fly-wing (delta-wing), and V-tail airplanes.

Quick Start

Before installing, make sure:
- All the surfaces are well connected to the servos by the linkage rods.
- Bind the receiver to your transmitter in advance.
- All channel directions and trims are set to the correct position.

Follow these steps to complete your first-time installation.

1. Power on the transmitter and create a new airplane model. Assign a 3-position switch for the flight mode control and make sure the switch does not have other function.
2. Mount the MSR66A on the airframe and connect its required channels to corresponding control surfaces.
3. Place the airplane on the ground and power it on, the LED on MSR66A will start fast green flashing, which means it is calibrating the gyro and the sticks, don't move the airplane and the sticks during this period. After a successful initialization, the LED displays the current flight mode.
4. After a successful initialization, use the transmitter or program card to set the programmable items (mounting direction, wing type, etc.).
5. Switch to **Gyro Off Mode**. Adjust the neutral position for all servos. Check the direction of movement of the servos by moving the stick one by one. If the servo moves in an opposite direction, reverse it on your transmitter (for details, please refer to the instruction manual of transmitter).

⚠️ **CAUTION:** If you have set the trims in this step, please redo Step 3 to initialize MSR66A.

6. Switch to **Normal Mode**, check the gyro direction one by one, and reverse it if the gyro reacts in a wrong direction.
7. Use the transmitter or program card again to set the programmable items (assigning the desired flight mode to the 3-position switch, adjusting the gain, etc.). After completing all the setting, begin your first flight.

Flowchart:

Create a model, assign a 3-position switch
↓
Mount and connect MSR66A
↓
Power on the airplane, finish the initialization
↓
Set the mounting direction, wing type, etc
↓
Set the airplane by transmitter
↓
Check the Gyro direction
↓
Adjust the gain and other settings, begin to fly

Introduction

MSR66A is a mini 6-channel 2.4GHz receiver integrated with 6-axis gyro and stabilizer, provides four different flight modes: Gyro off, Normal, Aerobatic, and Auto-Recovery, can be programmable from the matched transmitter or program card.
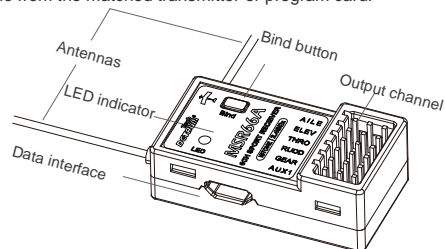
- The port descriptions of MSR66A are list in the table below. For each channel, the signal wire is close to the decal of MSR66A, middle is VDD and right is GND.

| AILE	Aileron channel	ELEV	Elevator channel
THRO	Throttle channel	RUDD	Rudder channel
GEAR	Gear channel	AUX1	Auxiliary channel 1
Note: For delta-wing airplane, the left and right aileron servos are connected to the AILE and ELEV channels. For V-tail airplane, the left and right rudder servos are connected to ELEV and RUDD channels.			

- The data interface is used to connect to the program card to set the parameters.
- The LED is used to indicate the MSR66A's status. For details, please see *LED Descriptions*.

Installation

MSR66A should be mounted on the platform inside the airframe by using one of the provided double-sided tapes. The installation position should follow the principles below.
- Close to the center of gravity (CG).
- MSR66A's heading direction must be the same as the airplane's heading direction.
- The edges of MSR66A are all parallel with the corresponding axes of the airplane.

MSR66A can be attached flat or upright. There are four different mounting directions: face up, face down, face left, and face right, as shown in the figure.
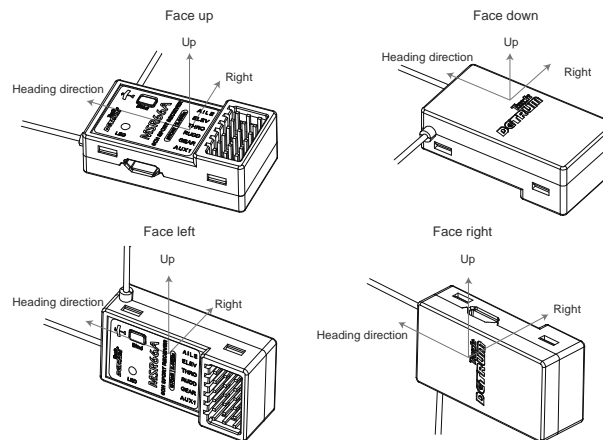
Installation precaution:
- You need only one piece of the double-sided tapes each time. A soft or thick mounting may hinder the performance of the gyro.
- Please use the double sided tape comes with MSR66A, do not use hot-melt glue or belt.
- Please make enough space around MSR66A, stay away from motor, ESC, and battery, cannot be touched by servo horn, linkage, or other movable parts.
- Place the antennas in an open space, do not block them. Position the heads of two antennas at 90-degree angle, do not place the two antennas twisted together or in parallel.

Binding

The MSR66A sport receiver must be bound to the transmitter before it will operate. Each transmitter has an individually assigned, unique ID code. Once the binding is made, the ID code is stored in the receiver and no further binding is necessary after restarting the receiver.

Preconditions:
- Move the throttle stick to the lowest position and make sure the transmitter is powered off.
- Place the transmitter and the receiver close to each other within a distance of about 1 meter.

Steps:
1. Power on MSR66A. The LED indicator will start fast red flashing, indicating the transmitter is off.
2. Long press (more than 2 sec) **Bind** button, the LED indicator will start slow red flashing, indicating the receiver is in bind mode and ready to be bound to the transmitter.
3. Put the transmitter in bind mode, the system begins to bind.
4. Once the LED on MSR66A stays green, indicating the receiver is bound to the transmitter. About 2 seconds later, the LED starts fast green flashing, indicating entering the initialization process.

Initialization

After powering on the RC system or after binding, MSR66A will enter the initialization process and the LED will start fast green flashing, which means it is calibrating the gyro and the sticks. Do not move the airplane and the sticks during this period, otherwise MSR66A will recalibrate repeatedly (a maximum of 10 seconds).
- If the calibration is successful, MSR66A will switch to flight mode and the LED will display the current flight mode.
- If the calibration is failed, the LED will stay red, which means the calibration is failed (the gyro is unavailable), MSR66A is used only as a receiver. You have to restart the power to initialize MSR66A again.

Flight Mode

User a 5-channel or higher transmitter, assign a 3-position switch for the flight mode control and make sure this switch does not have other function. Then you can switch the flight mode with it.

MSR66A provides four different flight modes. The LED indicates the current flight mode (for details about the LED status, please see *LED Descriptions*).

The descriptions of the flight modes are as follows.
- **Normal Mode**: In this mode, the gyro will sense angular velocity on each axis and make a momentary reaction. The normal mode is suitable for all types of airplane. It can effectively improve the stability of your airplane, especially on a windy day.
- **Aerobatic Mode**: By adding the attitude hold function to the gyros, it will lock the airplane to its previous attitude if there is no command sent from the transmitter in a flight. This mode can effectively help you to accomplish an aerobatic flight. Operate the sticks in this mode, MSR66A won't affect the operation and can improve the stability of the airplane. Once release the sticks, MSR66A will save the previous flight attitude and lock the airplane to this attitude.

  Flying in **Aerobatic Mode**, do not drastically adjust the trims, excessive trims will affect the judgment of neutral position for the transmitter. Please set the trims during test, and then turn off and power it on.
- **Gyro Off Mode**: Choose this mode to disable the gyros for all channels. The airplane will be completely under the control of the transmitter, and MSR66A will act only as a receiver. Generally, it is only used to test.
- **Auto-Recovery Mode** (also called Auto Balance Mode): Choose this mode to lock the tilt angle on pitch and roll axis. When operating in this mode, the airplane will maintain level flight automatically. When switch it to this mode from any other modes in an emergency, the airplane will recover to the level flight automatically, which it is known as one-click rescue. This mode is suitable for the new beginners or the FPV (First Person View) applications.

Setting the Programmable Items

After installing and initializing, set MSR66A's programmable items with matched transmitter or program card. Programmable items include: mounting direction, wing type, roll/pitch/yaw gain, flight mode, offset on roll/pitch, etc. For details about the setting methods, please refer to the instruction manual of transmitter or program card.

Appendix

LED Descriptions

LED	Descriptions
Binding	
Red, slow flashing	The receiver is ready to be bound to the transmitter
Green	The binding is successful
Initialization	
Red, fast flashing	The remote control signal is lost (or the radio is off)
Green, fast flashing	It is calibrating the gyro and the stick
Red	Fail to calibrate, MSR66A used only as a receiver
Flight Mode	
Green	Gyro Off
Blue	Normal Mode
Purple	Aerobatic Mode
Blue-green	Auto-Recovery (Auto Balance)

Specifications

Items	Specifications
Channels	6-channel
Sensor	6-axis gyro
Sensitivity	-97dBm
Output	PWM (71Hz)
Input Voltage	3.6V ~ 16V
Size	39mm*20mm*13mm
Weight	7g