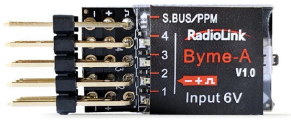

RadioLink Byme-A Flight Controller of Fixed-Wing Instruction Manual

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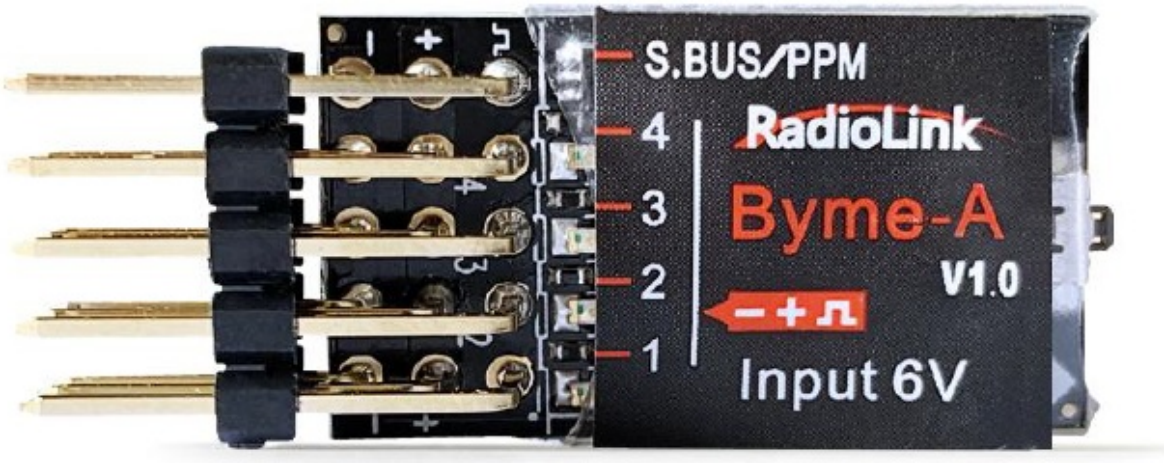


Thanks for purchasing Radiolink flight controller Byme-A.
To fully enjoy the benefits of this product and ensure safety, please read the introduction carefully and set up the device as described below:

If any problems found during the operation process, please kindly refer to the manual first. Then pilots could contact our distributors to find solution or follow our Facebook homepage **https://www.facebook.com/radiolinkofficial/** to search related key words. Also, pilots can send questions to **after_service@radiolink.com.cn** and we will answer your question at the earliest. Due to unforeseen changes in production procedures, the information contained in this manual is subject to change without notice.
For more information, please check our website **http://www.radiolink.com**

SAFETY PRECAUTIONS

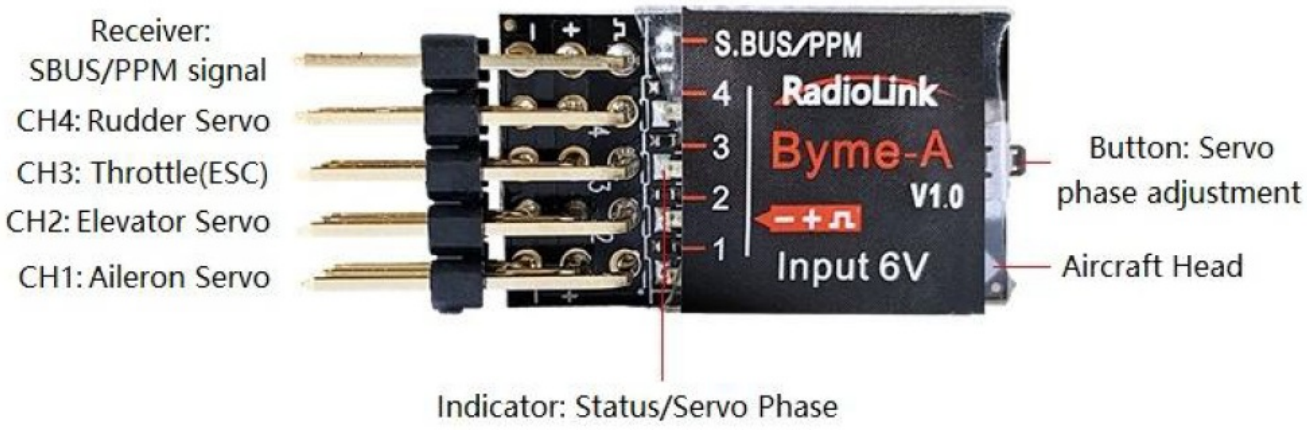
- Never operate model during adverse weather conditions. Poor visibility can cause disorientation and loss of control of pilots' model.
- Never use this product in a crowd and illegal area.
- Always ensure the trim levers at 0 and battery properly charged before connecting the receiver.
- Always check all servos and their connections prior to each run.
- Always be sure about turning off the receiver before the transmitter.
- To ensure the best radio communication, please enjoy the flight/driving at the space without interference such as high voltage cable, communication base station or launching tower.

WARNING

This product is not a toy and is NOT suitable for children under the age of 18. Adults should keep the product out of the reach of children and exercise caution when operating this product in the presence of children.
Water or moisture may enter the transmitter inside through gaps in the antenna or joystick and cause model instability, even out of control. If running in the wet weather (such as game) is inevitable, always use plastic bags or waterproof cloth to cover the transmitter.

Introduction

Byme-A is a flight controller applicable to various straight wing aircraft including 3D fixed wing(F3P) and 4-channel trainer and scale model aircraft(excluding V-tail gliders) and is SBUS and PPM signal supported. With the three-axis gyroscope and three-axis acceleration sensor and the full attitude algorithm, control algorithm and digital filter, Byme-A makes the flight much easier.
There are five flight modes: Vertical Mode, Stabilize Mode, Gyro Mode, Acrobat Mode, Manual Mode.

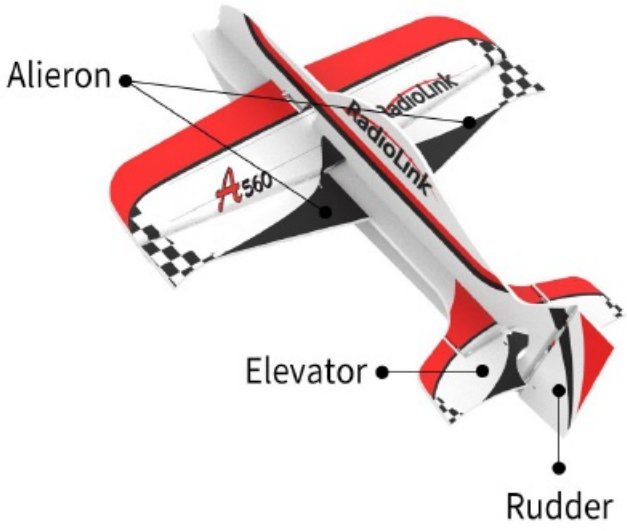


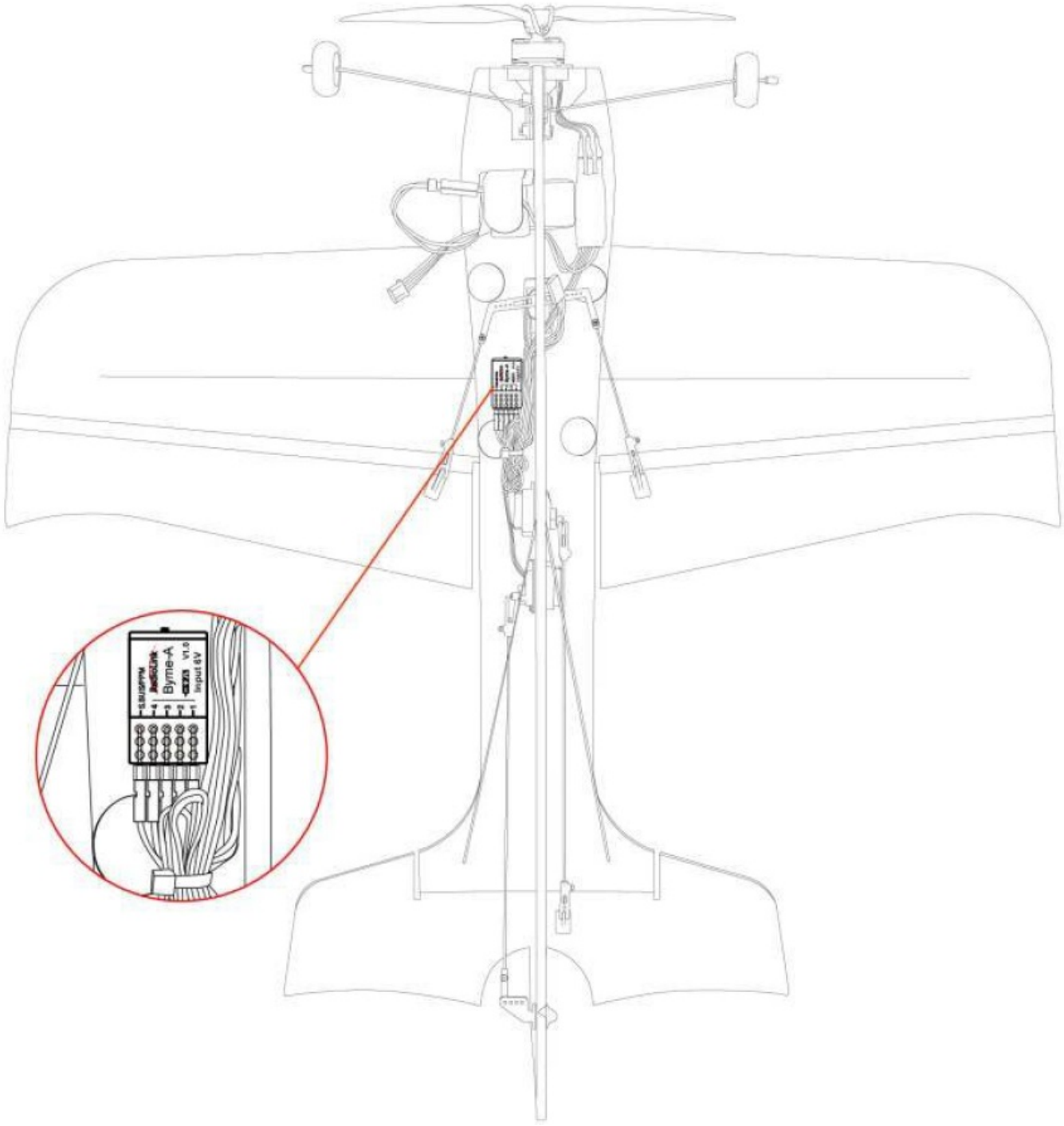
Parameters

- Size 35.5*15.5*10.5mm (1.4″*0.61″*0.41″)
- Weight(With wires) 4.5g 0.16oz
- Channel Quantity 4
- Integrated Sensor three-axis gyroscope and three-axis acceleration sensor
- Signal Supported SBUS/PPM
- Input Voltage 5-6V
- Operating Current 25±2mA

Installation

Make sure the arrow on Byme-A points to the aircraft head. The flight controller can be installed either face up or down with 3M glue on the aircraft body (better around the center) and the wires connect to the corresponding pins. Install Byme-A as shown below:





Transmitter Setup

1. Set model type as fixed wing in the transmitter.
2. Set transmitter phase:

   CH3 – Throttle: Reversed

   Other channels: Normal

Note 1. After the phase setting in the transmitter, please refer to 8.2 Attitude Calibration to calibrate the attitude once, and then check the servo phase.
Note 2. After the phase setting in the transmitter, please keep the setting and do not make any modifications. If the control surface of the aircraft moves incorrectly when pushing the stick, please change the servo phase by pressing the servo phase adjustment on Byme-A.

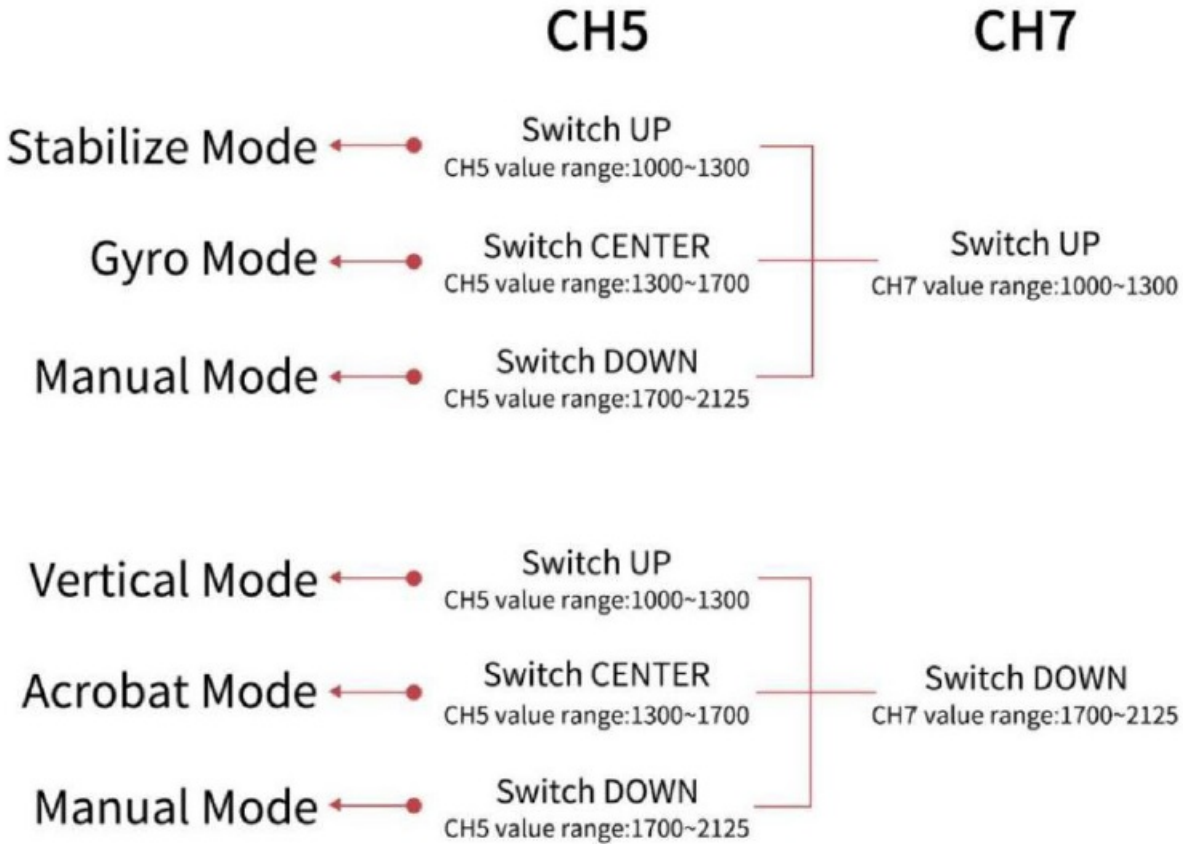
Flight Modes Setup

Flight modes can be set by CH5 and CH7 on transmitter with five modes: Vertical, Stabilize, Gyro, Acrobat and Manual.

- When using the T8S transmitter, the flight mode switches are CH5(a 3-way switch) and CH7(a 3-way switch) by default. The definition of the flight mode switchover switches is as the picture below:

- When using the T8FB transmitter, the flight mode switchover switches are default CH5(a 3-way switch) and CH7(a 2-way switch). The definition of the flight mode switchover switches is as the picture below:

- When using other brand transmitters, please refer to the following picture to switch the flight modes. The value range of channel 5 and channel 7 corresponding to the flight mode is as shown below:



Five Flight Modes

Vertical Mode

At Vertical Mode, the aircraft will remain vertical posture and direction. The altitude algorithm of Byme-A maps the joystick operation onto horizontal ordinates and takes control of full altitude. Below is the picture illustration with Mode 2 as example. When the aircraft is vertical, toggle the aileron joystick(CH1) to control the aircraft moving left or right.

When the aircraft is vertical, toggle the elevator joystick(CH2) to control the aircraft moving forward or backward.

When the aircraft is vertical, toggle the rudder joystick(CH4) to control the aircraft moving (anti)clockwise.

Stabilize Mode

Different form manually control, Stabilize Mode with flight controller balancing, is suitable for beginners to practice level flight.
The model attitude (inclination angles) is controlled by joysticks. When the joystick is back to central point, the aircraft will level. The max inclination angle is 70° for rolling while that for pitching is 45°.

A560 leans to left
(move to left)

Rolling to left

A560 leans to right
(move to right)

Rolling to right

A560 head lifts
(ascend)

Pitching downward

A560 head pressed
(desend)

Pitching upward

If the throttle is toggled upward, the aircraft accelerate. If toggled downward, the aircraft decelerate.

Gyro Mode

At this more advanced mode, the integrated three-axis gyro assists to increase the stability. But the aircraft won't level even the joystick is back to central point. The joystick control the rotation(angle speed) of the aircraft. That is, when rolling, pitching or rudder joystick is toggled, the aircraft will rotate with the corresponding speed.

Acrobat Mode

Combination of Stabilize Mode and Gyro Mode makes it easy to realize various free styles such as rolling, rapid pitching, backward, side flight and spiral descending.
the aircraft will level when the joystick is back to central point. If the joystick is toggled with small range, the aircraft will move to the corresponding directions.
When toggle joysticks with large range, aircraft will rotate to the corresponding directions.

Manual Mode

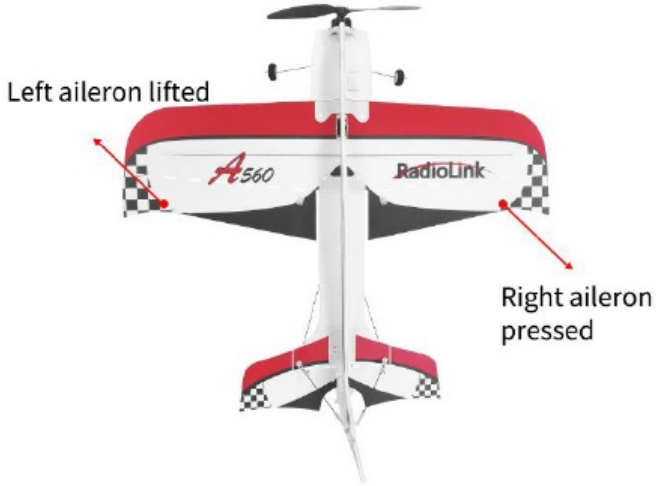
No assistance from flight controller algorithm or gyro, all flight movements are realized manually, which requires the most advanced skills.
It's strongly advised for beginners to choose Vertical Mode or Stabilize Mode to practice. Or if in small space, Vertical Mode can be set to take off and land then switch to level flight(Stabilize Mode/Gyro Mode/Acrobat Mode/Manual Mode) when reach a certain height. If switch to other flight modes from Vertical Mode, remember to pull the elevator joystick to ensure rising of the aircraft. Otherwise the aircraft will crash.
When at Vertical Mode, the joystick operation is same as that of multi-copters.
When at Stabilize Mode/Gyro Mode/Acrobat Mode/Manual Mode, the joystick operation is standard one of fixed wing. Beginners have better to practice with simulators and get familiar to the operations of aileron/elevator/throttle/rudder joysticks in advance.

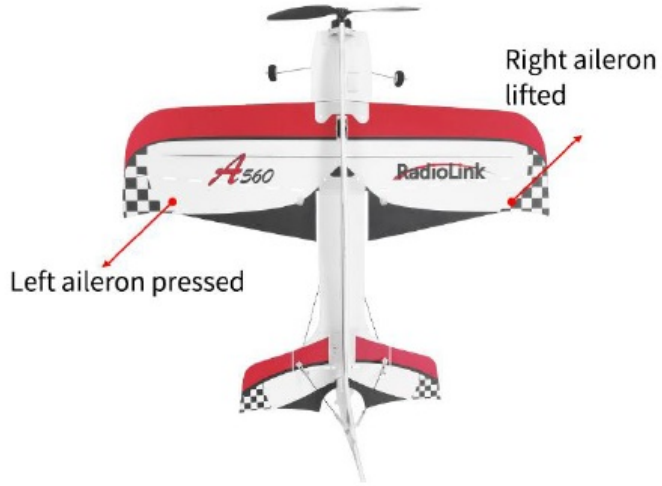
Servo Phase

Servo Phase Test

Make sure the servo phases are correct before flight. All the settings will take Mode 2 as example. Please check the Servo Phase at Manual Mode first and then Stabilize Mode.

1. **At Manual Mode,** put the aircraft on the ground or desk and keep horizontal. Check the phase of aileron, elevator, and rudder by push the joysticks of transmitter.
   Toggle the aileron joystick to left, left aileron is lifted and right one is pressed; toggle the joystick to right, left aileron is pressed and right one is lifted.





   Toggle the elevator joystick downward, elevator servo(horizontal tail) is lifted; toggle the joystick upward, elevator servo(horizontal tail) is pressed.

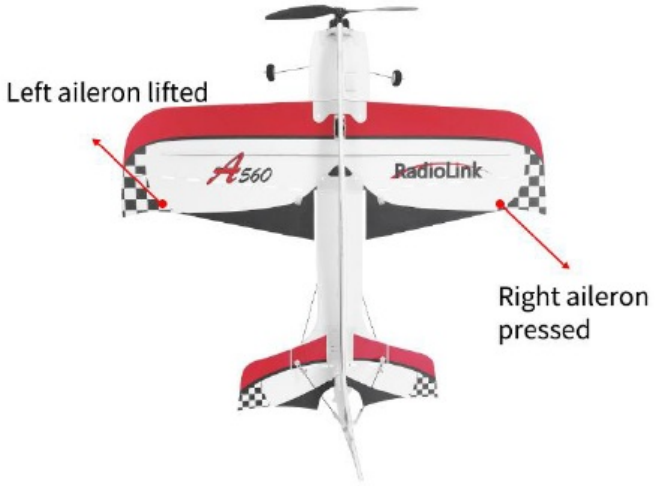
Toggle the rudder joystick to left, rudder servo(vertical tail) turns to left; toggle the joystick to right, rudder servo(vertical tail) turns to right.

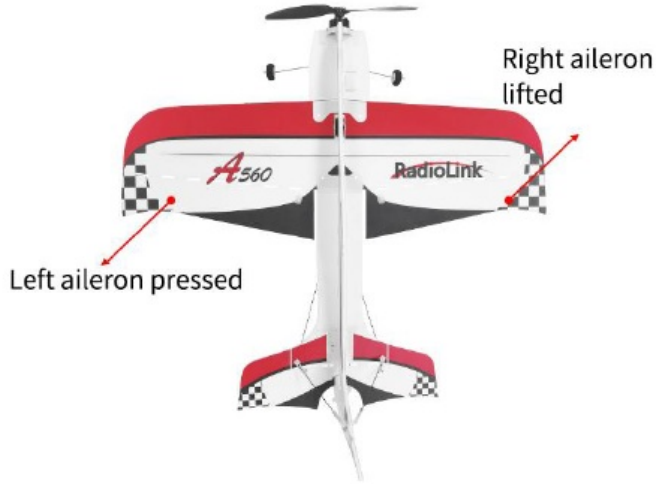
Toggle the throttle joystick to the bottom and the motor stays still. Gently push the throttle stick upward, motor moves faster and faster.

In manual mode, if the servo phase is reversed, please adjust the servo phase by the flight controller Byme-A.

See Chapter 7.2 Servo Phase Adjustment for the adjustment method.

2. At Stabilize Mode, put the aircraft on the ground or desk and keep horizontal. Check the phase of aileron, elevator, and rudder by push the joysticks of transmitter.
   Toggle the aileron joystick to left, left aileron is lifted and right one is pressed; toggle the joystick to right, left aileron is pressed and right one is lifted.





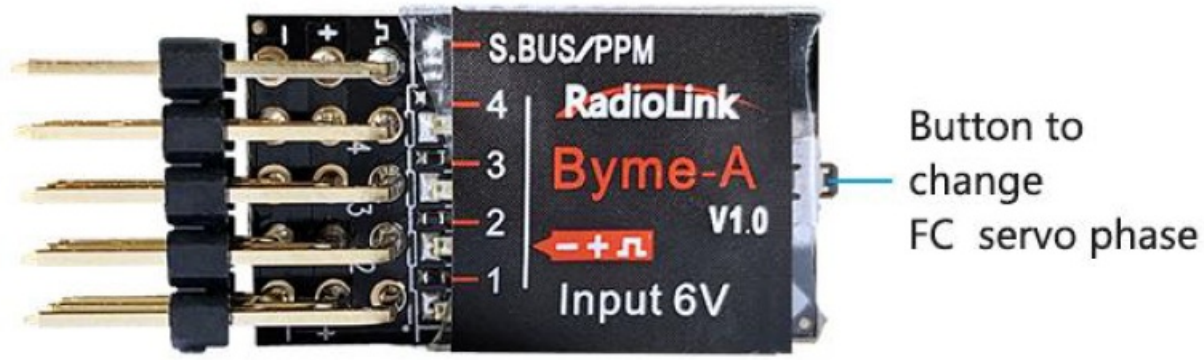
Toggle the elevator joystick downward, elevator servo(horizontal tail) is lifted; toggle the joystick upward, elevator servo(horizontal tail) is pressed.

Toggle the rudder joystick to left, rudder servo(vertical tail) turns to left; toggle the joystick to right, rudder servo(vertical tail) turns to right.

In Stabilize mode, if the servo phase is reversed, please adjust the servo phase by the flight controller Byme-A. See Chapter 7.2 Servo Phase Adjustment for the adjustment method.

Servo Phase Adjustment

If servo phase is reversed, the phase needs to be adjusted by the flight controller. Press the button on the front of the flight controller Byme-A to change the phase. The adjustment method is as follows:



No.	Channel	If phase is reversed	Indicator LED
1	AIL	Short press the button once	Green LED to CH1 on/off
2	ELEV	Short press the button twice	Green LED to CH2 on/off
3	THRO	N/A	Green LED always on
4	RUDD	Short press the button four times	Green LED to CH4 on/off

Note

1. Make sure attitude calibration is done before servo phase calibration. Because flight controller will auto identify NOR/REV and modify gyro direction when doing attitude calibration.
2. Neither the always-on nor off green LED means reversed phase. Only toggle the joysticks can check if the corresponding servo phases are reversed.

Flight Controller Calibration

Power-on Calibration

1. Push the throttle stick of the transmitter to the lowest position first, and then power on the aircraft. If the throttle stick is pushed to the highest position and then power on the aircraft, the ESC will enter the calibration mode.
2. Each time the flight controller is powered on, the flight controller will calibrate with the green LED quickly flashing, which means gyro calibration is under process. Therefore, it is recommended to install the battery first, then place the aircraft on the ground, and then power on the aircraft and put the aircraft still on the ground until DEE sounds from the motor heard. When the green LED is always on means calibration done.

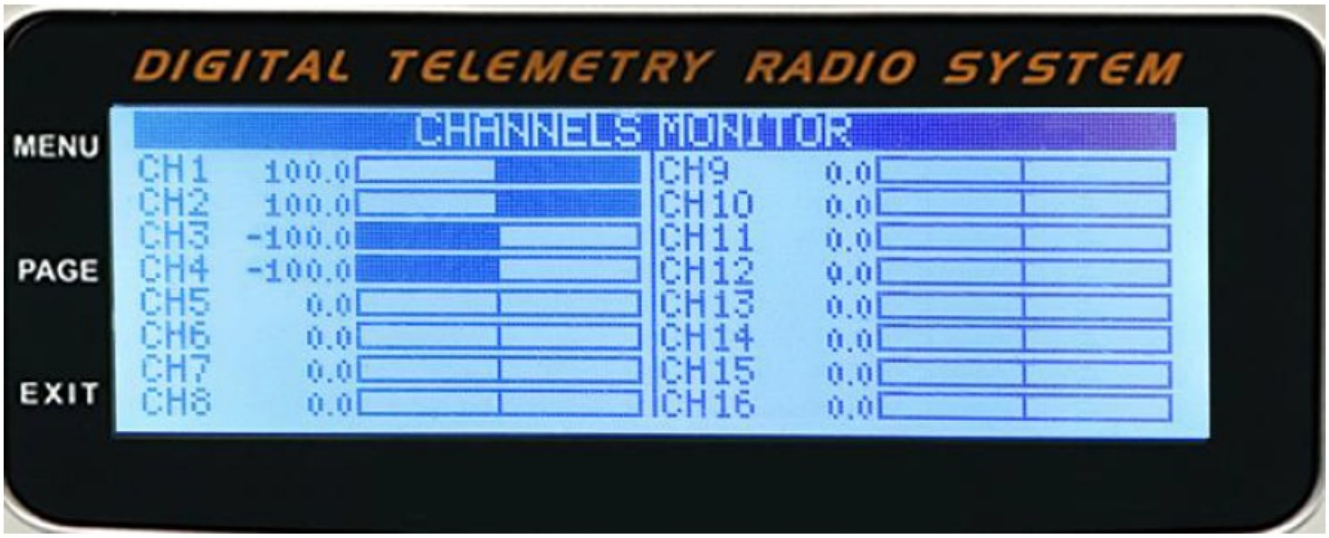
Attitude Calibration

Flight controller Byme-A needs to calibrate the attitudes/level to ensure the balance status.

1. It is advised to lift the model head with a certain angle(20 degree is advised) to ensure the calibration accuracy and attitude calibration will be recorded by flight controller once the it is complete with success.

2. Push the left stick (left and down) and the right stick (right and down) as below and hold more than 3 seconds. The green LED flashes once mean the calibration completed. It is also normal for the control surface to swing or the motor to rotate once at this time.

Note: When using a non-RadioLink transmitter, if the attitude calibration is unsuccessful when pushing the left stick (left and down) and the right stick (right and down), please change the direction of the channel in the transmitter. Make sure when pushing the joystick as above, the value range of channel 1 to channel 4 is:
CH1 2000 μs, CH2 2000 μs, CH3 1000 μs, CH4 1000 μs
Take an open source transmitter as example. The servo display of channel 1 to channel 4 when calibrating the attitude successfully is as shown below:



CH1 2000 µs (opentx +100), CH2 2000 µs (opentx +100)
CH3 1000 µs (opentx -100), CH4 1000 µs (opentx -100)

Gyro Sensitivity

There is certain stability margin for the Byme-A PID control. To different models, if Byme-A under correct or over correct, pilots can try adjusting the rudder angle.

Thank you again for choosing Radiolink product

Documents / Resources

	**RadioLink Byme-A Flight Controller of Fixed-Wing** [pdf] Instruction Manual Byme-A Flight Controller of Fixed-Wing, Byme-A, Flight Controller of Fixed-Wing
	**RadioLink Byme-A Flight Controller of Fixed-Wing** [pdf] Instruction Manual Byme-A, Flight Controller of Fixed-Wing, Byme-A Flight Controller of Fixed-Wing, Controller of Fixed-Wing

References

- RadioLink-Official Website