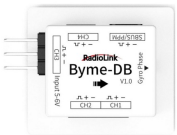
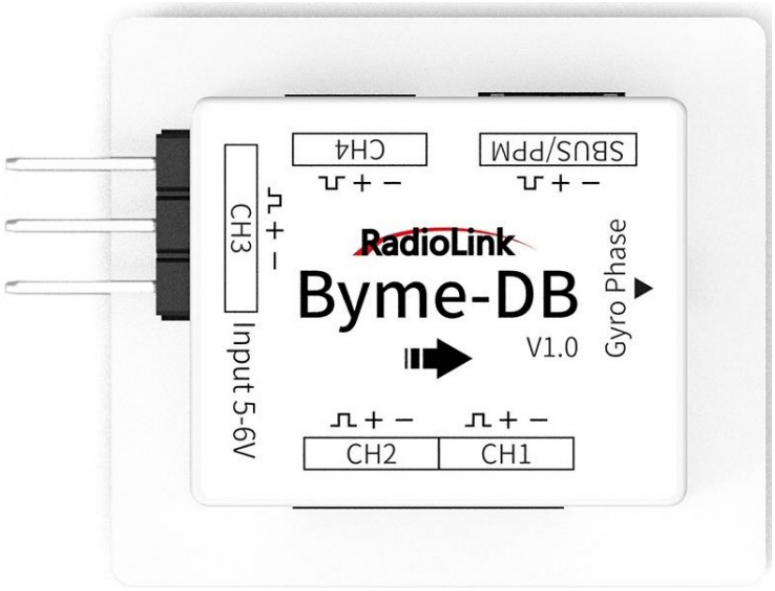


RadioLink Byme-DB Built In Flight Controller Instruction Manual

Contents

RadioLink Byme-DB Built-In Flight Controller



Specifications

- **Product Name:** Byme-DB
- **Version:** V1.0
- **ABpplicable Model Airplanes:** All model airplanes with mixed elevator and aileron controls including delta wing, paper plane, J10, traditional SU27, the SU27 with rudder servo, and F22, etc.

Safety Precautions

This product is not a toy and is NOT suitable for children under the age of 14. Adults should keep the product out of the reach of children and exercise caution when operating this product in the presence of children.

Installation

To install Byme-DB on your aircraft, please follow the instructions provided in the installation manual.

Flight Modes Setup

Flight modes can be set using channel 5 (CH5), which is a 3-way switch on the transmitter. There are 3 modes available: Stabilize Mode, Gyro Mode, and Manual Mode. Here is an example of setting flight modes using RadioLink T8FB/T8S transmitters:

1. Refer to the provided picture to switch the flight modes on your transmitter.
2. Make sure channel 5 (CH5) values correspond to the desired flight mode as shown in the value range provided.

Note: If you are using a different brand transmitter, please refer to the provided picture or your transmitter's manual to switch and set the flight modes accordingly.

Motor Safety Lock

If the motor only beeps once when toggling the switch of channel 7 (CH7) to the unlock position, the unlocking fails. Please follow the troubleshooting methods below:

1. Check if the throttle is at the lowest position. If not, push the throttle to the lowest position until the motor emits a second-long beep, indicating a successful unlocking.
2. Since the PWM value width of each transmitter may be different, when using other transmitters except RadioLink T8FB/T8S, please refer to the provided picture to lock/unlock the motor using channel 7 (CH7) within the specified value range.

Transmitter Setup

1. Do not set any mixing in the transmitter when Byme-DB is mounted on the aircraft. The mixing is already implemented in Byme-DB and will automatically take effect based on the flight mode of the aircraft.
    - Setting mixing functions in the transmitter may cause conflicts and affect the flight.
2. If you are using a RadioLink transmitter, set the transmitter phase as follows:
    - **Channel 3 (CH3) –** Throttle: Reversed
    - **Other channels:** Normal
3. **Note:** When using a non-RadioLink transmitter, there is no need to set the transmitter phase.

Power-on and Gyro Self-test:

- After powering on Byme-DB, it will perform a gyro self-test.
- Please ensure that the aircraft is placed on a flat surface during this process.
- Once the self-test is complete, the green LED will flash once to indicate successful calibration.

Attitude Calibration

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

To perform attitude calibration:

1. Place the aircraft flat on the ground.
2. Lift the model head with a certain angle (20 degrees is advised) to ensure smooth flight.
3. Push the left stick (left and down) and the right stick (right and down) simultaneously for more than 3 seconds.
4. The green LED will flash once to indicate that the attitude calibration is complete and recorded by the flight controller.

Servo Phase

To test the servo phase, please make sure you have completed the attitude calibration first. After the attitude calibration, follow these steps:

1. Switch to Manual mode on your transmitter.
2. Check if the movement of the joysticks matches that of the corresponding control surfaces.
3. Take Mode 2 for the transmitter as an example.

FAQ

Q: Is Byme-DB suitable for children?

- **A:** No, Byme-DB is not suitable for children under the age of 14.
- It should be kept out of their reach and operated with caution in their presence.

Q: Can I use Byme-DB with any model airplane?

- **A:** Byme-DB applies to all model airplanes with mixed elevator and aileron controls including delta wing, paper plane, J10, traditional SU27, the SU27 with rudder servo, and F22, etc.

Q: How do I troubleshoot if the motor unlocking fails?

- **A:** If the motor only beeps once when toggling the switch of channel 7 (CH7) to the unlock position, try the following methods:

1. Check if the throttle is at the lowest position and push it down until the motor emits a second-long beep, indicating a successful unlocking.
2. Refer to the provided picture to adjust the value range of channel 7 (CH7) according to your transmitter's specifications.

Q: Do I need to set any mixing in the transmitter?

- **A:** No, you should not set any mixing in the transmitter when Byme-DB is mounted on the aircraft.
- The mixing is already implemented in Byme-DB and will automatically take effect based on the flight mode of the aircraft.

Q: How do I perform attitude calibration?

- **A:** To perform attitude calibration, follow these steps:

1. Place the aircraft flat on the ground.
2. Lift the model head with a certain angle (20 degrees is advised) to ensure smooth flight.
3. Push the left stick (left and down) and the right stick (right and down) simultaneously for more than 3 seconds.
4. The green LED will flash once to indicate that the attitude calibration is complete and recorded by the flight controller.

Q: How do I test the servo phase?

- **A:** To test the servo phase, make sure you have completed the attitude calibration first.
- Then, switch to Manual mode on your transmitter and check if the movement of the joysticks matches that of the corresponding control surfaces.

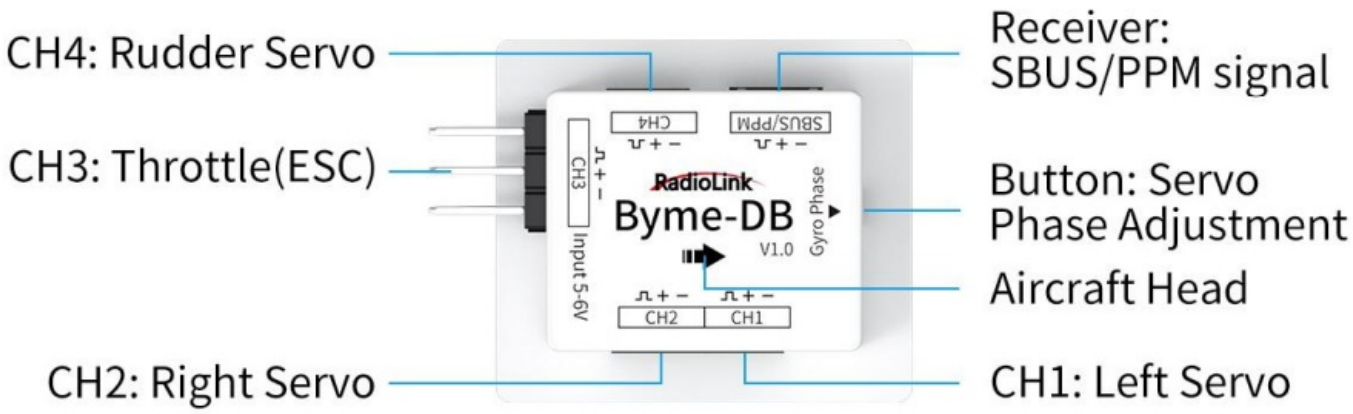
Disclaimer

- Thank you for purchasing the RadioLink Byme-DB flight controller.
- To fully enjoy the benefits of this product and ensure safety, please read the manual carefully and set up the device as instructed steps.
- Inappropriate operation may cause property loss or accidental threats to life. Once the RadioLink product is operated, it means the operator understands this limitation of liability and accepts to take responsibility for the operation.
- Make sure to follow the local laws and agree to follow the principles that made by RadioLink.
- Fully understand that RadioLink cannot analyze the product damage or accident reason and cannot offer after-sales service if no flight record is provided. To the maximum extent permitted by law, RadioLink won't take any responsibility for the loss caused by indirect/consequent/accidental/special/penal damages including the loss by purchase, operation, and failure of operation in any instances. Even RadioLink is informed about the possible loss in advance.
- Laws in certain countries may prohibit the exemption from the terms of the guarantee. Therefore consumer rights in different countries may vary.
- In compliance with laws and regulations, RadioLink reserves the right to interpret the above terms and conditions. RadioLink reserves the right to update, change, or terminate these terms without prior notice.
- **Attention:** This product is not a toy and is NOT suitable for children under the age of 14. Adults should keep the product out of the reach of children and exercise caution when operating this product in the presence of children.

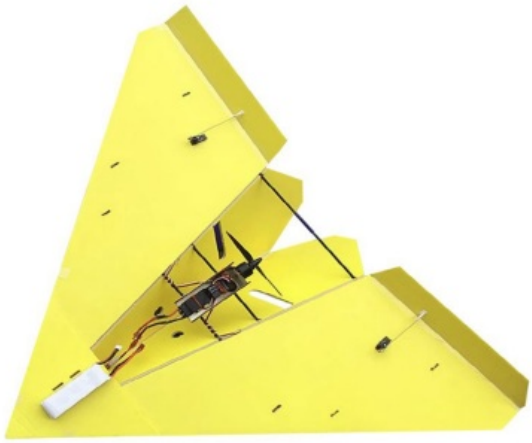
Safety Precautions

1. Please do not fly in the rain! Rain or moisture may cause flight instability or even loss of control. Never fly if there is lightning. It is recommended to fly in conditions with good weather (No rain, fog, lightning, wind).
2. When flying, you must strictly abide by local laws and regulations and fly safely! Do not fly in no-fly areas such as airports, military bases, etc.
3. Please fly in an open field away from crowds and buildings.
4. Do not perform any operation under the condition of drinking, fatigue or other poor mental state. Please operate in strict accordance with the product manual.
5. Please be cautious when flying near electromagnetic interference sources, including but not limited to high-voltage power lines, high-voltage transmission stations, mobile phone base stations, and TV broadcast signal towers. When flying in the above-mentioned places, the wireless transmission performance of the remote control may be affected by interference. If there is too much interference, the signal transmission of the remote control and the receiver may be interrupted, resulting in a crash.

Byme-DB Introduction



- Byme-DB applies to all model airplanes with mixed elevator and aileron controls including delta wing, paper plane, J10, traditional SU27, the SU27 with rudder servo, and F22, etc.



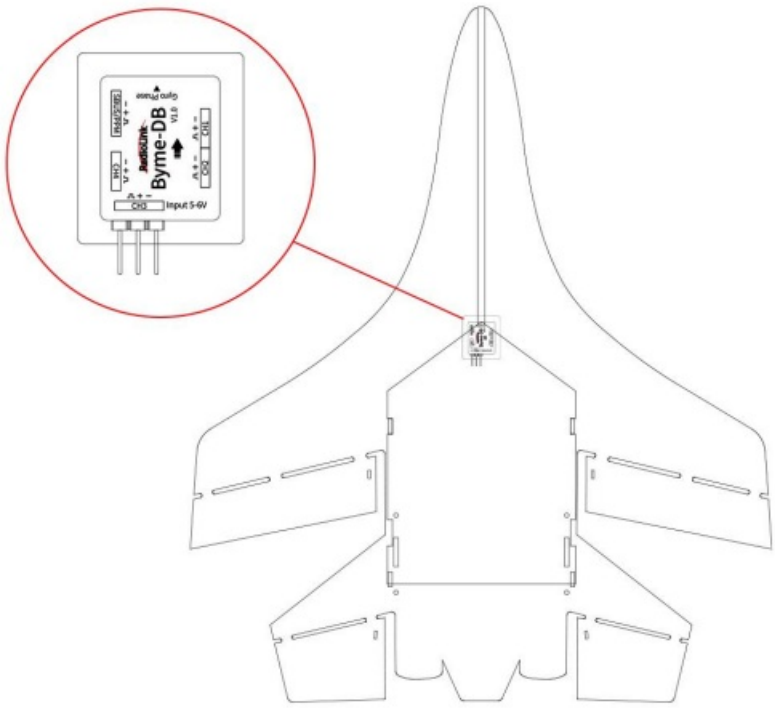
Specifications

- **Dimension** 29*25.1*9.1mm
- **Weight (With wires):** 4.5g
- **Channel Quantity:** 7 channels
- **Integrated Sensor:** Three-axis gyroscope and three-axis acceleration sensor
- **Signal Supported:** SBUS/PPM
- **Input Voltage:** 5-6V
- **Operating Current:** 25±2mA

- **Flight Modes:** Stabilize Mode, Gyro Mode and Manual Mode
- **Flight Modes Switch Channel:** Channel 5 (CH5)
- **Motor Lock Channel:** Channel 7 (CH7)
- **Socket** SBpecifications: CH1, CH2 and CH4 are with 3P SH1.00 sockets; The receiver connect socket is 3P PH1.25 socket; CH3 is with a 3P 2.54mm Dupont Head
- **Transmitters Compatible:** All the transmitters with SBUS/PPM signal output
- **Models Compatible:** All model airplanes with mixed elevator and aileron controls including delta wing, paper plane, J10, traditional SU27, the SU27 with rudder servo, and F22, etc.

Installation

- Make sure the arrow on Byme-DB points to the aircraft head. Use 3M glue to flatly attach Byme-DB to the fuselage. It is recommended to install it near the center of gravity of the aircraft.
- Byme-DB comes with a receiver connect cable which is used to connect the receiver to Byme-DB. When connecting the servo cable and ESC cable to Byme-DB, please check whether the servo cable and ESC cable match the sockets/head of Byme-DB.
- If they do not match, the user needs to modify the servo cable and ESC cable, and then connect the cables to Byme-DB.



Flight Modes Setup

Flight modes can be set to channel 5 (CH5) (a 3-way switch) in the transmitter with 3 modes: Stabilize Mode, Gyro Mode, and Manual Mode.

Take RadioLink T8FB/T8S transmitters as examples:

Note: When using other brand transmitters, please refer to the following picture to switch the flight modes.

The value range of channel 5 (CH5) corresponding to the flight mode is as shown below:

Motor Safety Lock

- The motor can be locked/unlocked by Channel 7 (CH7) in the transmitter.
- When the motor is locked, the motor will not rotate even if the throttle stick is in the highest position. Please put the throttle to the lowest position, and toggle the switch of channel 7 (CH7) to unlock the motor.
- The motor emits two long beeps means the unlocking is successful. When the motor is locked, the gyro of Byme-DB is automatically turned off; When the motor is unlocked, the gyro of Byme-DB is automatically turned on.

Note:

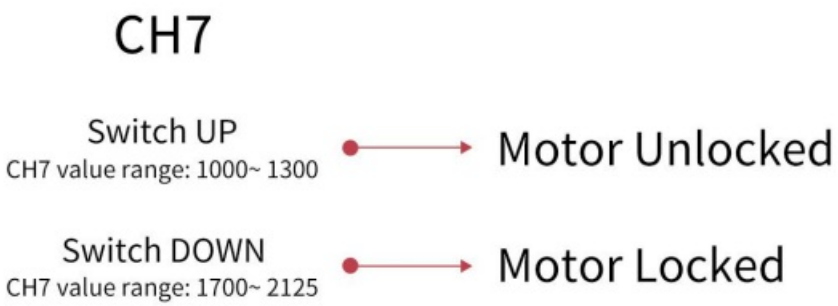
- If the motor only beeps once when toggle the switch of channel 7 (CH7) to the unlock position, the unlocking fails.
- Please follow the methods below to troubleshoot it.

1. Check whether the throttle is at the lowest position. If not, please push the throttle to the lowest position until the motor emits a second-long beep, which means the unlocking is successful.
2. Since the PWM value width of each transmitter may be different, when using other transmitters except RadioLink T8FB/T8S, if the unlocking still fails even though the throttle is at the lowest position, you need to increase the throttle travel in the transmitter.
    - You can toggle the switch of channel 7 (CH7) to the motor unlocking position, and then adjust the throttle travel from 100 to 101, 102, 103… until you hear the second long beep from the motor, which means the unlocking is successful. During the process of adjusting the throttle travel, be sure to stabilize the fuselage to avoid injuries caused by blade rotation.

- Take RadioLink T8FB/T8S transmitters as examples.

- **Note:** When using other brand transmitters, please refer to the following picture to lock/unlock the motor.

The value range of channel 7 (CH7) is as shown below:



Transmitter Setup

- Do not set any mixing in the transmitter when Byme-DB is mounted on the aircraft. Because there is already the mixing in Byme-DB.
- The mix control will automatically take effect according to the flight mode of the aircraft. If the mixing function is set in the transmitter, there will be conflicts of mixing and affect the flight.

If a RadioLink transmitter is used, set the transmitter phase:

- **Channel 3 (CH3)** – **Throttle:** Reversed
- **Other channels:** Normal
- **Note:** When using a non-RadioLink transmitter, there is no need to set the transmitter phase.

Power-on and Gyro Self-test

- Each time the flight controller is powered on, the gyro of the flight controller will perform a self-test. The gyro self-test can only be completed when the aircraft is stationary. It is recommended to install the battery first, then power up the aircraft and keep the aircraft in a stationary state. After the aircraft is powered on, the green indicator light on channel 3 will be always on. When the gyro self-test passes, the control surfaces of the aircraft will shake slightly, and the green indicator lights of other channels such as channel 1 or channel 2 will also turn solid.

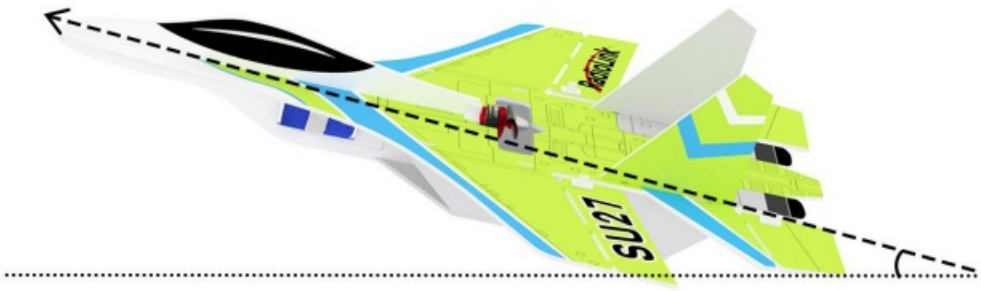
Note:

- 1. Due to differences in aircraft, transmitters, and other equipment, it is possible that the green indicators of other channels (such as channel 1 and channel 2) will not be on after the gyro self-test of Byme-DB is complete. Please judge whether the self-test is complete by checking whether the control surfaces of the aircraft shake slightly.
  2. 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 powered on the aircraft, the ESC will enter the calibration mode.

Attitude Calibration

- Flight controller Byme-DB needs to calibrate the attitudes/level to ensure the balance status.
- The aircraft can be placed flat on the ground when performing attitude calibration.
- It is advised to lift the model head with a certain angle(20 degrees is advised) for beginners to ensure smooth

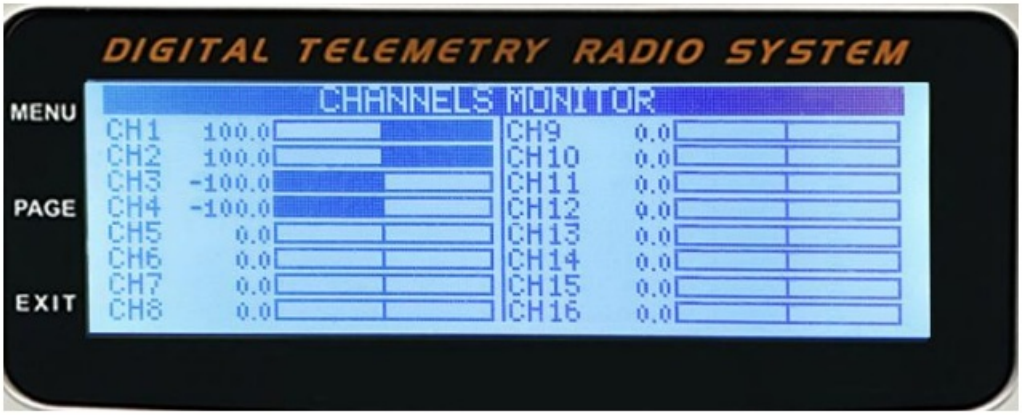
flight and attitude calibration will be recorded by the flight controller once it is complete with success.



- Push the left stick (left and down) and the right stick (right and down) as below and hold for more than 3 seconds. The green LED flashes once means the calibration is completed.

- **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 an example. The servo display of channel 1 to channel 4 when calibrating the attitude successfully is as shown below:



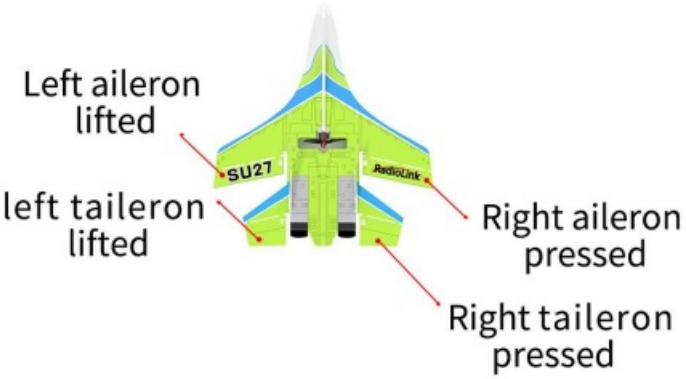
- CH1 2000 µs (opentx +100), CH2 2000 µs (opentx +100) CH3 1000 µs (opentx -100), CH4 1000 µs (opentx -100)

Servo Phase

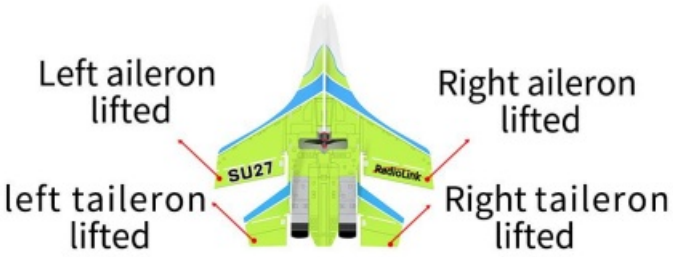
Servo Phase Test

- Please complete the attitude calibration first. After the attitude calibration is completed, you can test the servo phase. Otherwise, the control surface may swing abnormally.
- Switch to Manual mode. Check whether the movement of the joysticks matches that of the corresponding control surface. Take Mode 2 for the transmitter as an example.

Move the aileron stick to the left

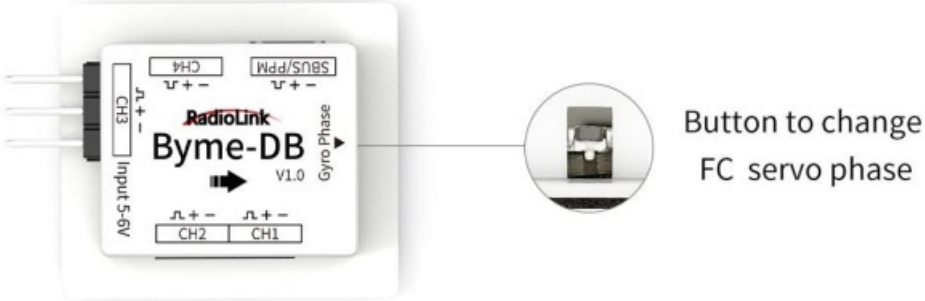


Move the elevator stick down



Servo Phase Adjustment

- When the movement direction of the ailerons is inconsistent with the joystick movement, please adjust the servo phase by pressing the buttons on the front of the Byme-DB.



Servo phase adjustment methods:

Servo phase test result	Reason	Solution	LED
Move the aileron stick to the left, and the movement direction of the ailerons and tailerons is reversed	Aileron mix control reversed	Short press the button once	Green LED of CH1 on/off
Move the elevator stick down, and the movement direction of the ailerons and tailerons is reversed	Elevator mix control reversed	Short press the button twice	Green LED of CH2 on/off
Move the rudder joystick, and the movement direction of the rudder servo is reversed	Channel 4 reversed	Short press the button four times	Green LED of CH4 on/off

Note:

1. The Green LED of CH3 is always on.
2. Neither the always-on nor off-green LED means a reversed phase. Only toggle the joysticks can check if the corresponding servo phases are reversed.
    - If the servo phase of the flight controller is reversed, adjust the servo phase by pressing the buttons on the flight controller. No need to adjust it in the transmitter.

Three Flight Modes

- Flight modes can be set to channel 5 (CH5) in the transmitter with 3 modes: Stabilize Mode, Gyro Mode, and Manual Mode. Here is the introduction of the three flight modes. Take Mode 2 for the transmitter as an example.

Stabilize Mode

- 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 a central point, the aircraft will level. The max inclination angle is 70° for rolling while that for pitching is 45°.

Move the aileron stick to the left

Model leans to left

Move the aileron stick to the right

Model leans to right

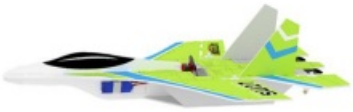
Move the elevator stick down

Model nose lifts

Move the elevator stick up

Model nose pressed

Stick centered



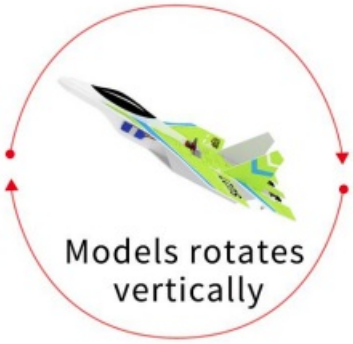
Model levels

Gyro Mode

- The joystick controls the rotation (angle speed) of the aircraft. The integrated three-axis gyro assists in increasing the stability. (Gyro mode is the advanced flight mode.
- The aircraft won’t level even if the joystick is back to the central point.)

Move the aileron stick to the left

Move the elevator stick down



Manual Mode

- With no assistance from the flight controller algorithm or gyro, all flight movements are realized manually, which requires the most advanced skills.
- In Manual mode, it is normal that there is no movement of the control surface without any operation on the transmitter because there is no gyroscope involved in stabilize mode.

Gyro Sensitivity

- There is a certain stability margin for the PID control of Byme-DB. For aircraft or models of different sizes, if the gyro correction is insufficient or the gyro correction is too strong, pilots can try adjusting the rudder angle to adjust the gyro sensitivity.

Technical Support Here

Contact RadioLink RL via Facebook Messenger

Byme-DB User Manual

Byme-DB Tutorials

- If the above information cannot solve your problem, you can also send emails to our technical support: **after_service@radioLink.com.cn**
- This content is subject to change. Download the latest manual of Byme-DB from **https://www.radiolink.com/bymedb_manual**
- Thank you again for choosing RadioLink products.

Documents / Resources

	RadioLink Byme-DB Built In Flight Controller [pdf] Instruction Manual Byme-DB, Byme-DB Built In Flight Controller, Built In Flight Controller, Flight Controller, Controller

References

- User Manual