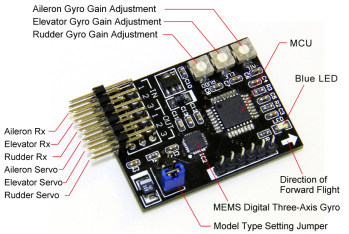
Thank you for purchasing EAGLE series of flight controller. A3 is a flight control board designed specifically for fixed-wing airplane, which supports 3 model types including Normal Airplane, Flying Wing and V-Tail. With a high-precision MEMS digital three-axis gyro built in, it provides sound stability, flexibility and reliability by automatically correcting for channels of aileron, elevator and rudder. Small size and light weight make it more adaptable for small airplane. (In our test, it can significantly improve the control on small 3D airplane with wingspan under 50cm)

【Features】

- Designed for 3 model types: Normal Airplane, Flying Wing and V-Tail, can be easily switched by the on-board jumper;
- Specifically optimized to work for 3D flight without undermining stability;
- Independent gyro gain adjustment for Aileron, Elevator and Rudder;
- Basic setting functions including stick centering and gyro reversing;
- Smaller and lighter, more adaptable for small airplane.

A3 Overview



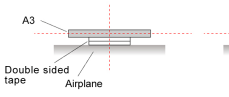
【Specifications】

Voltage Range: 4 - 6V DC
PWM Output: 50Hz, 1020 ~ 2020us
Full-Scale Range of Gyro: ±1000dps
Sample Rate of Gyro: 1KHz
Operating Temperature: -40 . to 85 .
Dimensions: 30 × 40mm
Weight: 8 g

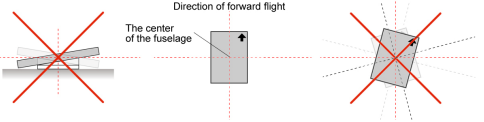
【Installation & Wiring】

The board should be securely mounted in the center of the fuselage of your plane applying the provided double sided tape. Please align the white arrow with forward flight direction when mounting. Inappropriate or inaccurate installation could decrease the performance of the board or even result in complete failure.

Side View

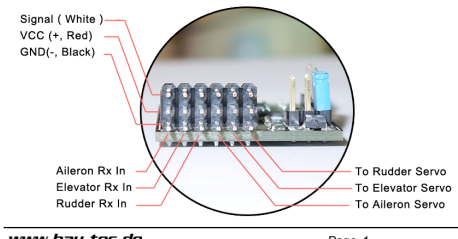


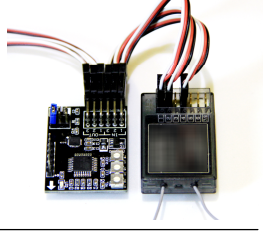
Top View



After installation, connect the channels of Aileron, Elevator and Rudder from your receiver to the pins on the board marked "IN", pin 1 for aileron, pin 2 for elevator and pin 3 for rudder. **VERY IMPORTANT!** **The Throttle channel need NOT be connected to the board, just connect it to the ESC or throttle servo directly**. Connect the servos to the pins marked "OUT", pin 1 for aileron servo, pin 2 for elevator servo and pin 3 for rudder servo, you should use a Y extension cable when using 2 aileron servos. When connecting, please pay attention to the color of wires to avoid anti-plug, as shown below:

Wiring Diagram





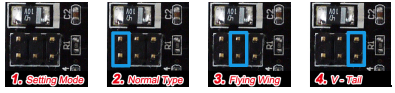
【Model Type Selection】

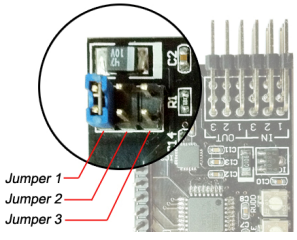
A3 has a 3-bit jumper for model type selection. Please match the type with your plane from among Normal Airplane, Flying Wing and V-Tail. **VERY IMPORTANT!** **Please restart the board to activate the selected type.**

Jumper Setting Table

No.	Model Type	J1	J2	J3
1	Setting Mode	0	0	0
2	Normal Airplane ▲	1	0	0
3	Flying Wing	0	1	0
4	V-Tail	0	0	1

Notes: "0" represents "OPENED", "1" represents "CLOSED", "▲" is the default setting.

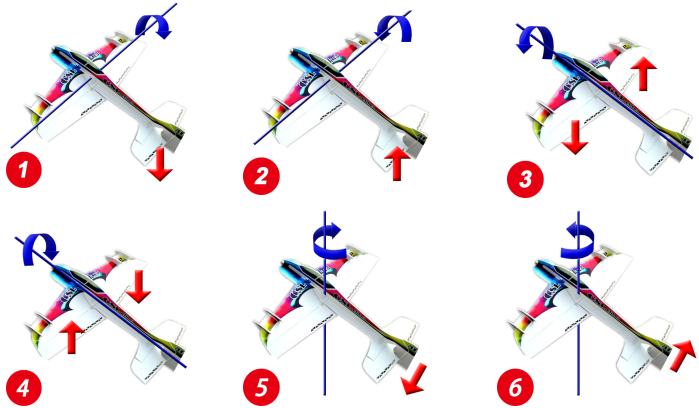




【Gyro Compensation Direction Verification】

VERY IMPORTANT! **Please make sure to verify that the gyro compensates in the correct direction after first-time installation, otherwise, it might lead to losing control or even crash during flight!** Power on the board, pick the plane up and check it by following the 6 steps shown below:

① Rise the head up around the pitch axis, the elevator should flap down accordingly; ② Put the head down around the pitch axis, the elevator should flap up accordingly. ③ Rotate left around the roll axis, the left aileron should flap down and the other one flap up accordingly; ④ Rotate right around the roll axis, the left aileron should flap up and the other one flap down accordingly; ⑤ Rotate right around the yaw axis, the rudder should turn left accordingly; ⑥ Rotate left around the yaw axis, the rudder should turn right accordingly.



If the gyro compensates in the incorrect direction, reverse it by following the instructions of **Gyro Reversing Function** within the **Setting Methods** section later in this manual.

【Setting Methods】

① Enter Setting Mode
Remove the short block, see P2 "Jumper Setting Table".

② Turn on the transmitter
Set the trimming of channels Ail, Ele and Rudd to zero, keep the sticks of these channels in the middle position.

③ Power on the board

④ Stick Centering Function
1. The LED will begin flashing very rapidly for about 1 second after initialization, this indicates that A3 is calibrating signals, don't move the sticks during this process.
2. Wait for 1 second.
3. The LED will turn ON, calibration done.

⑦ Exit Setting Mode
You can exit this mode by simply turning the power off any time. Make sure to restore the setting of jumpers in order to avoid entering this function next time.

Wait for 5 seconds

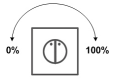
⑤ Gyro Reversing Function
1. The LED will begin flashing very rapidly for about 2 seconds, this indicates that A3 is entering Gyro Reversing Function.
2. After waiting 1 second, the LED will flash circularly.
3. ☼ ------- ☼ ------- ☼ ------- ☼ ------- ☼ -------
   The LED will flash 1 times per second for a total of 5 times, you can now switch the compensation direction of **Aileron** gyro by moving the rudder stick to left or right.
4. ☼-☼ ------- ☼-☼ ------- ☼-☼ ------- ☼-☼ ------- ☼-☼ -------
   The LED will flash 2 times per second for a total of 5 times, you can now switch the compensation direction of **Elevator** gyro by moving the rudder stick to left or right.
5. ☼-☼-☼ ------- ☼-☼-☼ ------- ☼-☼-☼ ------- ☼-☼-☼ ------- ☼-☼-☼ -------
   The LED will flash 3 times per second for a total of 5 times, you can now switch the compensation direction of **Rudder** gyro by moving the rudder stick to left or right.

⑥ Change The Direction of Gyro
1. To change the compensation direction of gyro, just move the rudder stick to left or right while the LED flashing, you can switch the setting between Normal and Reverse.
2. The LED will keep flashing until releasing the rudder stick.
3. Wait for about 0.5 second.
4. The LED will flash once again, this indicates that the adjustment has been accepted.
5. Continue into the next cycle.

VERY IMPORTANT! **To obtain the highest performance, make sure to apply the "Stick Centering" function to calibrate channel range after first-time installation or application of new radio system.**

【Gyro Gain Adjustment】

A3 offers 3 trimming potentiometers to adjust the gyro gain of Aileron, Elevator and Rudder, clockwise for increase, anticlockwise for decrease. The most suitable volume is determined by many factors, such as fuselage size, weight and the power allocation used. We strongly suggest you put the gain at a lower volume for the first flight, and then fine tune to get the best result. The adjustment will take effect immediately without needs to restart. For your safety, please don't adjust them until all the propellers become motionless.



【LED Indicator Description】

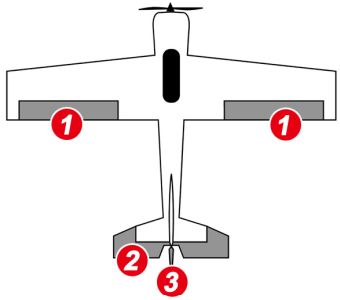
Slow Flash: 1 second or longer, Fast Flash: 1/5 second or shorter, Very Rapid Flash: 1/50 second or shorter.

Colors	Way of display	Description
Blue	Flash 1 times when power on: " ☼ "	Initialize success, type of Normal Airplane selected.
	Flash 2 times when power on: " ☼ -- ☼ "	Initialize success, type of Flying Wing selected.
	Flash 3 times when power on: " ☼ -- ☼ -- ☼ "	Initialize success, type of V-Tail selected.
	Fast circular flashing: "☼ -- ☼ -- ☼ -- ..."	Undefined model type, check the setting of jumper.
	Slow circular flashing: "☼------☼------☼------☼-------..."	No signal input, check whether the transmitter is on.
	Very rapid flash for 1 second	Entering the stick centering function.
	Very rapid flash for 2 second	Entering the gyro reversing function.
	Solid ON	Working, ready for flight.

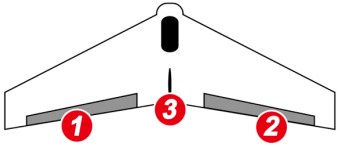
【Supported Model Types】

① OUT-1 Aileron Servo
② OUT-2 Elevator Servo
③ OUT-3 Rudder Servo

Normal Airplane



Flying Wing



V-Tail