

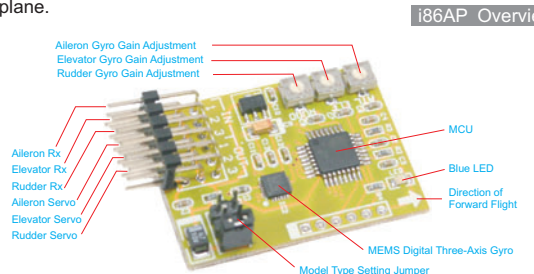
Thank you for purchasing this product. i86AP is a flight control board designed specifically for fixed-wing airplane, which supports 3 model types, including; Normal Airplane, Flying Wing and V-Tail. With a high-precision MEMS digital threeaxis gyro built in, it provides sound stability, flexibility 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 50 cm).

### 【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 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.

### 【Specifications】

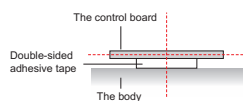
Voltage Range: 4-6V DC  
PWM Output: 50Hz, 1020-2020us  
Full-Scale Range of Gyro:  $\pm 1000$ dps  
Sample Rate of Gyro: 1KHz  
Operating Temperature: -40°C to 85°C  
Dimensions: 30X40mm  
Weight: 8g



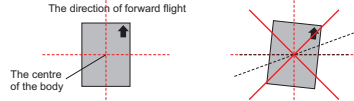
### 【Installation & Wiring】

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

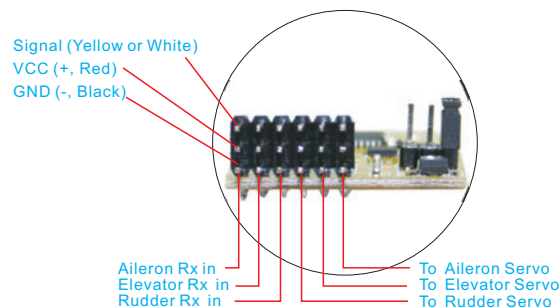


#### Top View



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", pin1 for aileron servo, pin 2 for elevator servo and pin3 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



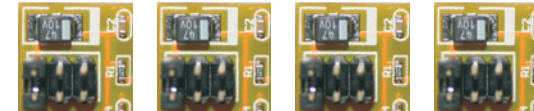
### 【Model Type Selection】

i86AP 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.

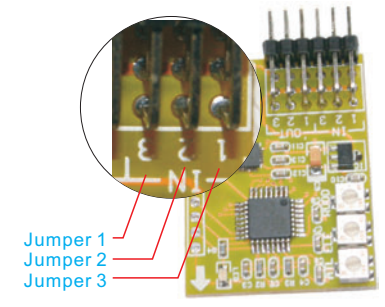
#### Jumper Setting Table

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.



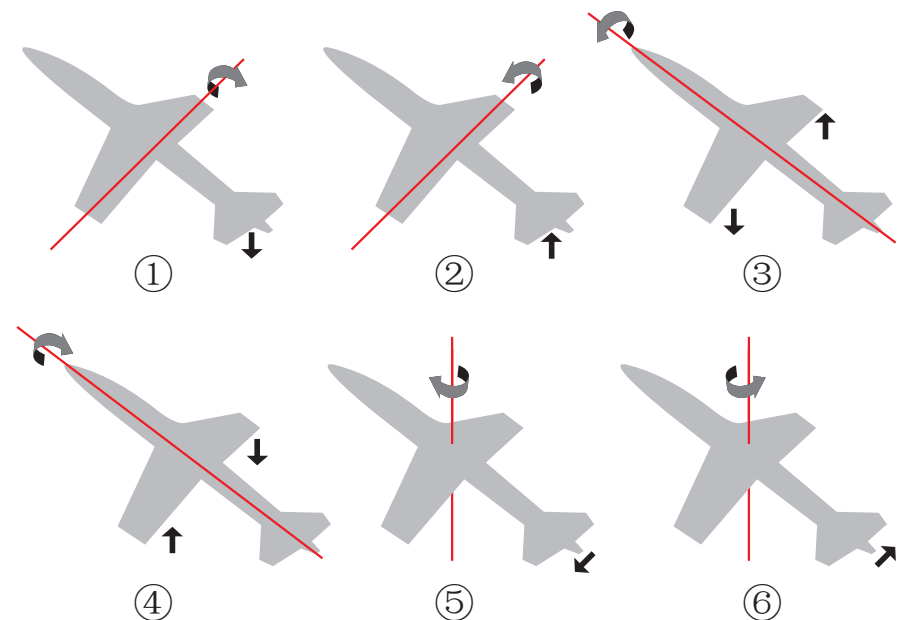
1. Setting mode 2. Normal Type 3. Flying wing 4. V-Tail



### 【Gyro Compensation Direction Verification】

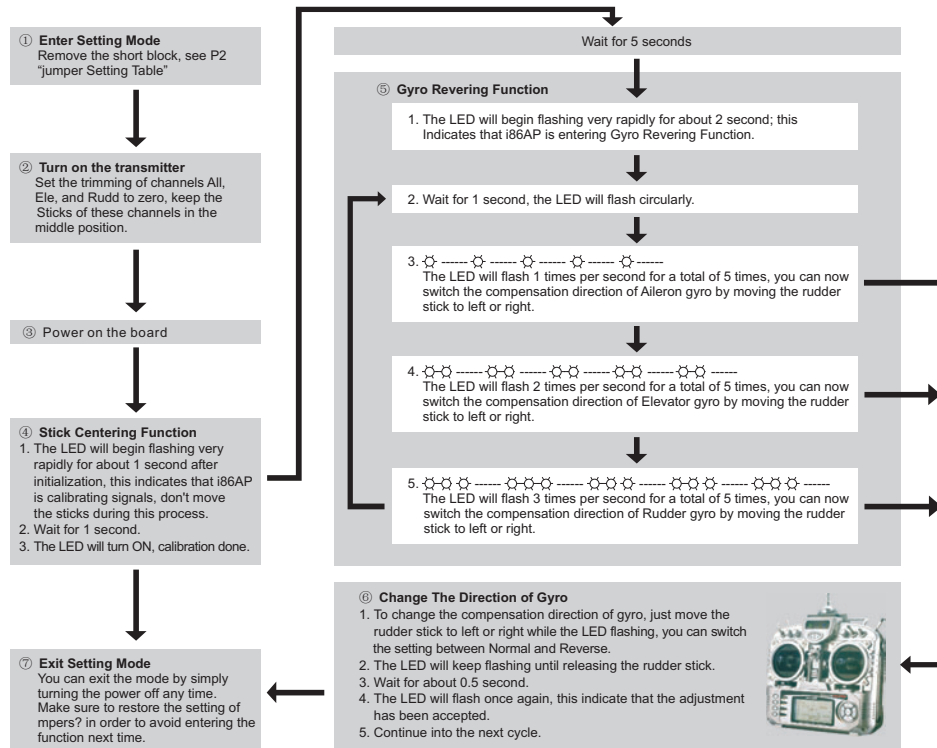
**VERY IMPORTANT** Please make sure to verify that the gyro compensates in the correct direction after first-time installation, otherwise, it might lead to losing control or even crash during flight!! Power on the board, pick the plane up and check it by following the 6 steps shown below.

- 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.

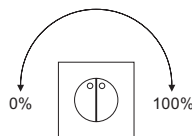
## 【Setting Methods】



**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】

i86AP offers 3 trimming potentiometers to adjust 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.



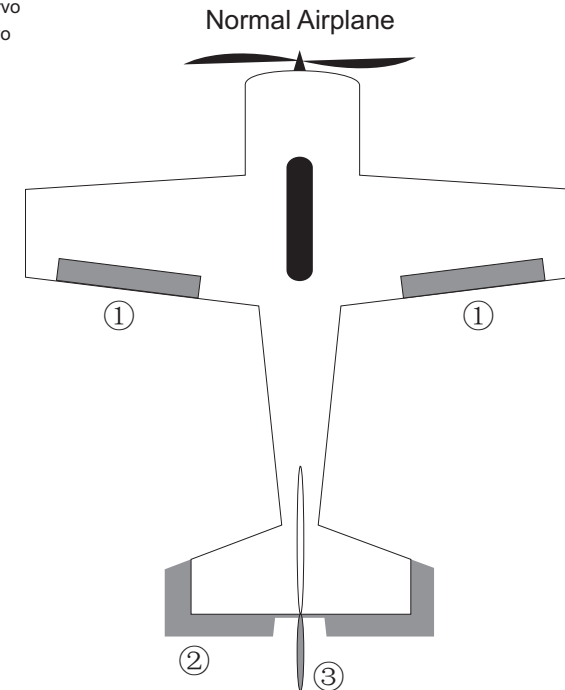
## 【LED Indicator Description】

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

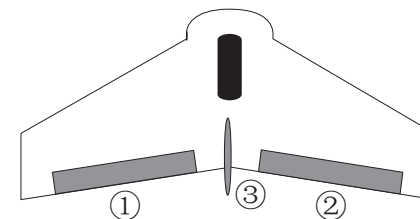
Colors	Way of display	Description
Blue	Flash 1 time when power on	Initialize success, type of Normal Airplane selected.
	Flash 2 time when power on	Initialize success, type of Flying Wing selected.
	Flash 3 time when power on	Initialize success, type of V-Tail selected.
	Fast circular flashing: "☆☆-----☆☆-----☆☆-----☆☆-----☆☆-----"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

## 【Supported Model Types】

- ① out-1 Aileron Servo
- ② out-1 Aileron Servo
- ③ out-1 Aileron Servo



Flying Wing



V-Tail

