Thank you for purchasing this product, i86L is a flight control board designed specifically for remote control multi-copters with 3.4and 6 rotors. With a high-precision MEMS digital three-axis gyro built in, it provides sound stability, flexibility and reliability by automatically correcting for axes of pitch, roll and yaw. Specifically optimized software put in place for sport flight mode without undermining stability, whether you are a beginner or advanced, it can bring to you the most excellent performance!

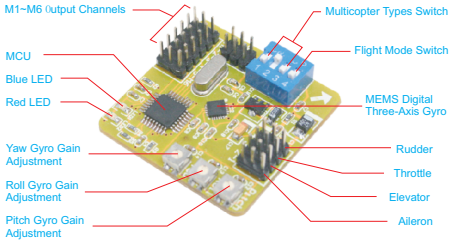
【Features】

1. Supports 6 multicopter types including Tri Copter, Quad+4Copter, Quad×4Copter, Hex Copter, H6 Copter and Y6 Copter, can be switched by the on-board Coding-Switch;
2. 2 flight modes to choose from for each type, including Normal Mode and Sport Mode;
3. The throttle lock function has been canceled in i86L it is ready for flight any time when the blue LED turns ON;
4. Independent gyro gain adjustment for pitch, roll and yaw;
5. Basic setting modes including stick centering and ESC throttle calibration;
6. Blue and red LEDs for working status display and error report.

【Specifications】

Voltage Range: 4-6V DC
PWM Output: 400Hz for ESC, 50 Hz for Servo
Full-Scale Range of Gyro: ±500dps
Sample Rate of Gyro: 1 KHz
Operating Temperature: -40℃ to 85℃
Dimensions: 40×40mm
Weight: 8g

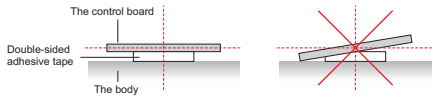
i861 Overview



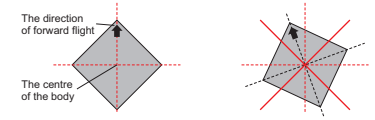
【Installation & Wiring】

The board should be securely mounted in the center of your multicopter 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

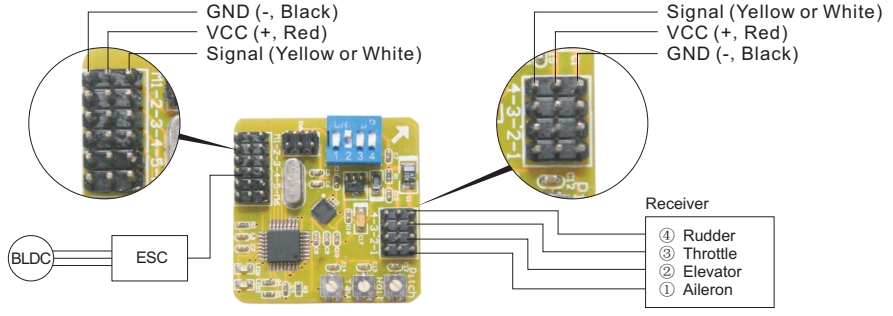


Top View



After installation, connect the channels of Aileron, Elevator and Rudder from your receiver to the pins on the board marked No. 1 to 4, and the ESCs (or servos) to the pins marked M1 to M6 in the correct order according to the selected multicopter type (See P4 “Supported Multicopter Types”).When connecting, please pay attention to the color of wires to avoid anti-plug. The WHITE (or YELLOW) signal wires should be connected corresponding to the inner pins on the board, the RED（VCC）wires to the center pins, and the BLACK(GND) wires to the pins on the outer edge of the board, as shown below:

Wiring Diagram



【Multicopter Type & Flight Mode Selection】

i86L has a 4-bit coding-switch for multicopter type and flight mode selection, the first 3 bits for multicopter type and the last bit for flight mode. VERY IMPORTANT! Please restart the board to activate the selected type or mode.

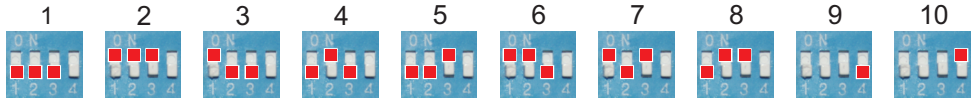
Multi copter Types Setting Table

No.	Multicopter Types	SW1	SW2	SW3	SW4
1	Stick Centering Function	0	0	0	X
2	ESC Throttle Calibration Function	1	1	1	X
3	Tri copter	1	0	0	X
4	Quad+4 Copter	0	1	0	X
5	Quad X 4 Copter ▲	0	0	1	X
6	Hex Copter	1	1	0	X
7	H6 Copter	1	0	1	X
8	Y6 Copter	0	1	1	X

Flight Mode Setting Table

No.	Flight Mode	SW1	SW2	SW3	SW4
1	Normal Mode (Recommended for beginners) ▲	X	X	X	0
2	Sport Mode	X	X	X	1

Notes: “0” represents “OFF”, “1” represents “ON”, “X” represents influence-proof for the mode set. i.e. Modes between normal and sport are either available for any multi copter types; “▲” is the default setting.



【Stick Centering】

The Stick Centering Function is used to calibrate channel range of aileron, elevator, throttle and rudder. To obtain the highest performance it is recommended to apply this function after first-time installation or application of new radio system. Follow the steps as shown below:

Step 1 Set the coding-switch to the “Stick Centering Function”, see “Multi copter Types Setting Table”,
Step 2 Turn on the transmitter, set the trimming of channel aileron, elevator, throttle and rudder to zero, keep the throttle stick in the bottom position, the other sticks in the middle;
Step 3 Power on the board. Both the blue and red LEDs will begin flashing simultaneously for once after initialization, this indicates that the board is entering the stick centering function. Wait for 1 second. Both the blue and red LEDs will flash 4 times quickly, this indicated that system is calibrating signals. Don’t move the sticks during this process;

Step 4 After calibration done, the blue LED will turn ON and the red one OFF, please turn the power off and restore the setting of the coding-switch in order to avoid entering this function next time.

【ESC Throttle Calibration】

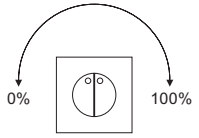
The ESC Throttle Calibration Function is used to setup the throttle range for the ESCs. To obtain the best linearity we strongly suggest you apply this function after first-time installation or application of new ESCs. Follow the steps as shown below:

Step 1 Set the coding-switch to the “ESC Throttle Calibration Function”, see “Multicopter Types Setting Table”,
Step 2 Turn on the transmitter, move the throttle stick to the top position;
Step 3 Power on the board. Both the blue and red LEDs will begin flashing simultaneously for twice after initialization, this indicated that the board is entering the ESC throttle calibration function. Wait for 1 second. The blue LED will turn ON and the red one OFF, this indicate that system Is ready to output signal to the ESCs. Please move the throttle stick to the bottom when the tones of throttle range highest point has been confirmed. Specific construction shall be referred to the manual of your ESC;

Step 4 Once you have completed setting up the ESCs simply turn the power off and restore the setting of the coding-Switch in order to avoid entering this function next time.

【Gyro Gain Adjustment】

i86L offers 3 trimming potentiometers to adjust the gain of pitch, roll and yaw gyros, clockwise for increase, anti-clockwise for decrease. The most suitable volume is determined by many factors, such as fuselage size, weight and 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.

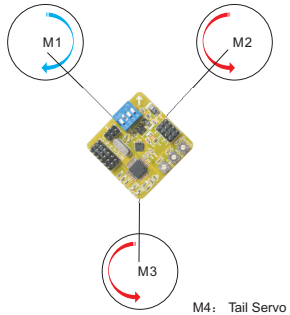
Colors	Way of display	Description
Blue	Flash N times when power on	Initialize success, N stands for the multicopter type selected, see "Multicopter Type Setting Table".
	Solid ON	Working, ready for flight.
Red	Solid ON	Undefined multicopter type, double check the setting of the coding-switch.
	Slow circular flashing: "Flash------Flash------Flash------....."	No signal input, check whether the transmitter is on.
	" Fast circular flashing: Flash--	The throttle stick is not in the lowest position when power on, move it to the bottom.
Red and Blue	Flash simultaneously for once	Entering the stick centering function.
	Flash simultaneously for twice	Entering the ESC throttle calibration function.

【Special Note】

1. Remote Control Models are NOT toys. The high-whirling propellers is very dangerous, therefore please carry out debugging and test flight in open space far away from the crowd. The beginner should be directed by someone experienced;
2. Always use a high-precision, good-quality fuselage and equipments to obtain the highest performance;
3. Make sure to apply the Stick Centering and ESC Throttle Calibration Functions after first-time installation or application of new equipments.

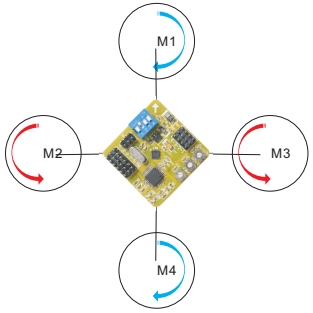
【Supported Multicopter Types】

Tri copter

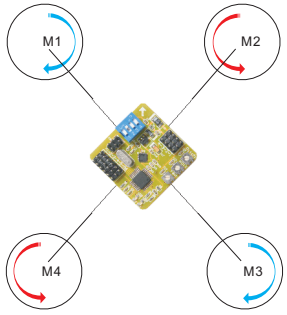


M4: Tail Servo
M5: Tail Servo
(Gyro Reverse)

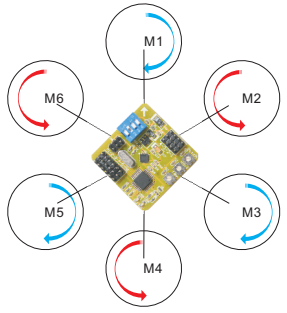
Quad +4 Copter



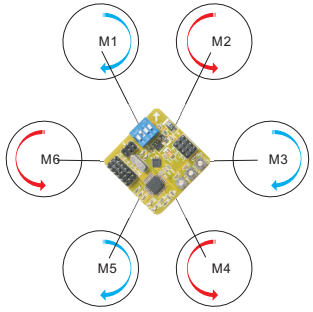
Quad X4 Copter



Hex Copter



H6 Copter



Y6 Copter