P1-GYRO

INSTRUCTION MANUAL

Thanks for choosing **THUNDER** P1-GYRO stabilizer. P1-GYRO is a small and ultra-light 3-axis gyro designed especially for aircraft,with excellent performance.P1-GYRO operates on 3 kinds of planes,V-tail,flying wing(delta) and normal plane..With latest MEMS technology ,P1-GYRO unit offers the best stability for pilots' flight,either normal or 3D.

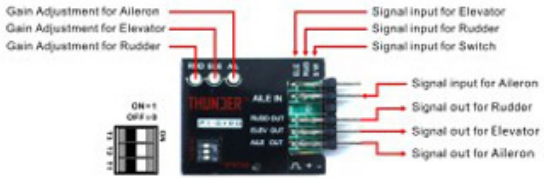
1.Adjust the trim on your transmitter with gyro off, make sure your plane can fly straight and level.
2. After the initialization, quickly flip the flight mode switch more than twice within 1 second so that the gyro could re-learn new center position.

1.Specification and Features

1.1Specification
Dimensions: 28mm*35mm Weight: 6g
Operating voltage: DC 3.5V-6V
Operating current: 20ma
Servo compatibility: 1.52ms analog servo, 1.52ms digital servo
Radio compatibility: PPM, PCM, 2. 4GHz
Operating Temperature: -30℃~70℃
1.2 Features
Support 3 modes,AVCS,Gyro Off and Normal mode and 3 types of airpalne.
Excellently optimized for 3D flight.
Independent gyro gain adjust for aileron, elevator and rudder.
Compact size,light,could be installed on small aircraft.

2.Connection.

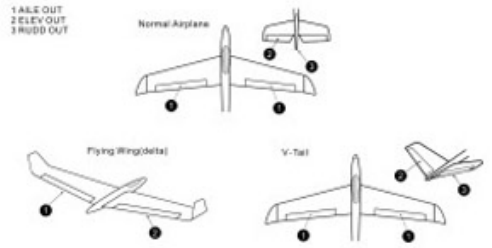
2.1 Signal Input
AILE IN: Signal input for Aileron
ELE IN: Signal input for Elevator
RUD IN: Signal input for Rudder
SW: Switch for Lock Mode
2.2 Signal Output
AILE OUT: Signal output for Aileron
ELEV OUT: Signal output for Elevator
RUDD OUT: Signal output for Rudder
2.3 Gyro Gain Adjustment
AIL: Gain Adjustment for Aileron
ELE: Gain Adjustment for Elevator
RUD:Gain Adjustment for Rudder

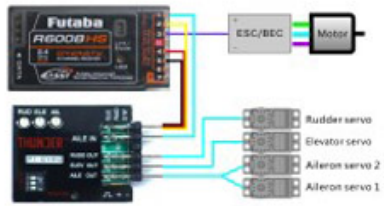


3.Model Selection

T1/T2/T3 for Airplane Model

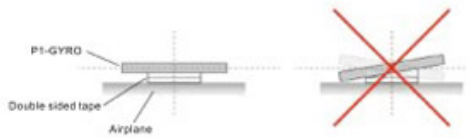
	T1	T2	T3	AIL OUT	ELEV OUT	RUDD OUT
Setting	0	0	0	-	-	-
Normal Airplane	1	0	0	AIL Servo	ELE Servo	RUD Servo
Flying Wing(delta)	0	1	0	Left wing servo	Right wing servo	RUD servo
V-Tail	0	0	1	AIL servo	Left wing servo	Right wing servo

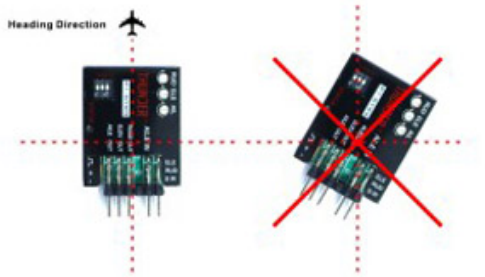




4.Mounting P1-GYRO

3AX needed to be mounted near the gravity center of the airplane with the double-face adhesive pad.The 3AX must be in a level platform with aircraft body.

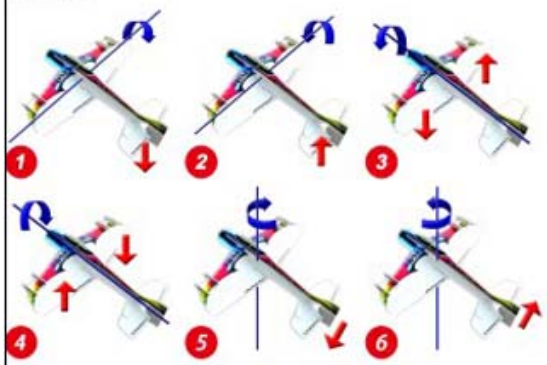




5.Transmitter Setting
Turn on the transmitter and create a new model, set the trims and sub-trims of all channels to zero, making sure that all mix-function are turned off.

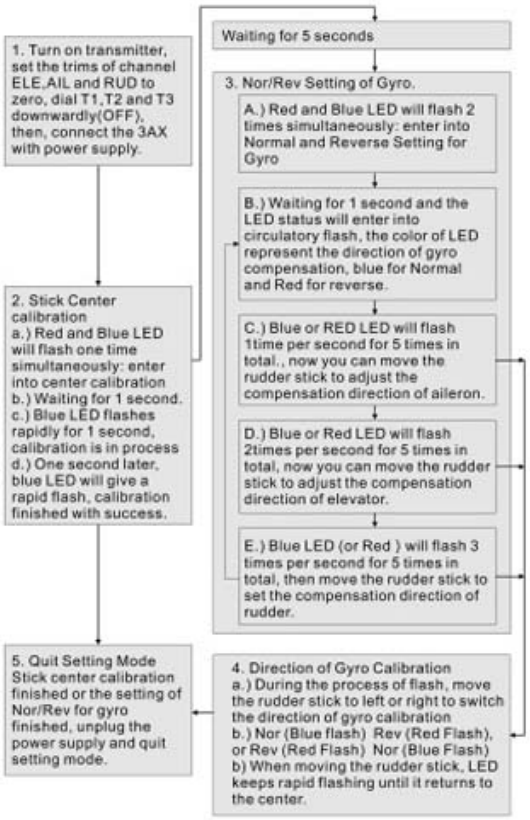
6.Gain Adjust
6.1 trimming potentiometers AIL, ELE and RUD correspond to the gain adjustment for those three channels, clockwise to increase and anti-clockwise to reduce.

7. Gyro Compensation Direction Verification
◆Connect the gyro, receiver and servo correctly;
◆Choose correct model for your airplane by dialing T1,T2 and T3;
◆Before flight, you have to verify that the gyro compensation is in the correct direction, otherwise, it could lead to losing control or even crash during the flight. To perform the examination, power on the board, pick the aircraft up and check it by the following steps.
Rise the head up around the pitch axis, the elevator should flap down accordingly; Put the head down around the pitch axis, the elevator should flap up accordingly.
Rotate left around the roll axis, the left aileron should flap down and the other one flap up accordingly; Rotate right around the roll axis, the left aileron should flap up and the other one flap down accordingly;
◆Rotate right around the yaw axis, the rudder should turn left accordingly;
◆Rotate left aroundthe yaw axis, the rudder should turn right accordingly. If the gyro compensates in an incorrect direction,



8. Stick Centering Calibration
To get the best performance, centering function is required. Make the stick in your transmitter to be centered and then enter into Setting Mode to calibrate. When you use the 3AX unit for the first time, or change your transmitter, the stick center calibrationis is required,after centering, all servos will be centered automatically. The center of aileron, elevator and rudder could be obtained by adjusting the linkage rods. The function of sub-trim in your transmitter could not be used.
Attention: The 3AX will re-learn the center position after installation, or changing a new radio system, or making a trimming (or Sub-Trim) change within the transmitter, otherwise the servos may move to one side automatically when switching to AVCS Mode. To do this, just quickly flip the flight mode switch 2 or 3 times between normal mode and AVCS mode within 1 second!
3AX has already built in the mixing functions for delta-wing (flying-wing) and v-tail. When operating it in such modes, the corresponding mixing must be disabled within your transmitter!
Don't move the aircraft when both the BLUE and RED lights are flashing very rapidly after power on until initialization done!

9. Setting Process



10.Switch of AVCS Mode
SW is the mode switch between AVCS and normal mode. When use a 2-position switch, you can only switch between normal mode and AVCS mode. It will be set to Normal Mode by default if the switch channel is not connected to the board. However it is not recommended as the board might get interrupted by the reception during the flight, which will result in the unexpected flight mode. For 3-section switch, apart from the AVCS and Normal mode ,it has an additional Gyro Off Mode, refer to the following table:

Flight Mode	Range of switch	Signal Pulse Width	LED Status
Normal	Less	1320US	Blue on
Gyro Off	Middle	1520+/-200US	Off
Locking (AVCS)	More	1720	Red on

11.LED Status

Initialization	Blue flashes rapidly for 3 secs after powering on	Initialization is normal, please don't move the plane
	After initialization,the blue LED will flash some times	Flash one time for normal model, two times for flying wing(delta) and three times for V-Tail
	Fast circular flashing of red LED after initialization	Initialization failed
Working Status	Blue LED steady on	Normal Mode
	Red LED steady on	AVCS Mode
	Both LEDs Extinguished	Gyro Off
Setting Mode	Entering into Setting Mode, the Red LED flash' s slowly	Signal of receiver undetected

12. First Flight.
For the first flight, please check if the direction of gyro compensation, direction of control by stick are correct, and set the gain to a small volume, and after times of flight test, then set it to a appropriate volume, in order to get the most excellent flight performance.