A3 Pro

6 AXIS AIRPLANE GYRO & STABILIZER

INSTRUCTION MANUAL

Mar. 20, 2018 Revision

For Firmware V1.1(b)

IMPORTANT NOTES

1. Radio controlled (R/C) models are not toys! The propellers rotate at high speed and pose potential risk. They may cause severe injury due to improper usage. It is necessary to observe common safety rules for R/C models and the local law. Read the following instructions thoroughly before the first use of your A3 Pro and setup the gyro carefully according to this manual. We also recommend that you seek the assistance of an experienced pilot before attempting to fly with our gyros for the first time.

2. Always turn on the transmitter before power on the plane and the gyro. After Power on, A3 Pro needs to perform an initialization which includes the gyroscope calibration and stick centering. Keep the plane still and wait for the gyro to initialize, the initialization will take about 2 seconds and the LED will blink blue several times. Don't move the plane and keep all the sticks in their original position until the initialization is done. After a successful initialization, the aileron servo will give you a short up and down move. If the LED retains solid blue, stop moving the plane then the initialization will start automatically.

3. Always check the gyro direction for each channel before takeoff. An opposite reaction of the gyro could lead to losing control or crash during flight!

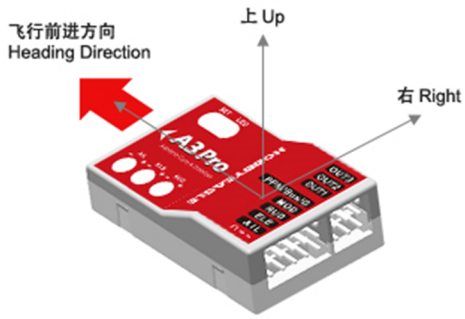
4. Never use a very small gain setting or master gain when flying with the gyro in Trainer mode, or it will lead to a weak control or even losing control of the plane.

5. After installing the gyro, you can still fine tune the neutral position of the servos using the Sub-Trim setting or Trimming buttons of the transmitter as before, however, it is recommended that always center the servos by adjusting the servo arms and linkage rods at the beginning of the installation, it is especially important when a large amount of adjustment needs to be adjusted because a large trimming from the transmitter can degrade performance of the system. The gyro also provides you an effective setup utility to adjust the center position of the servos without affecting the performance of the gyro (See Page 7 "Servo Trimming").

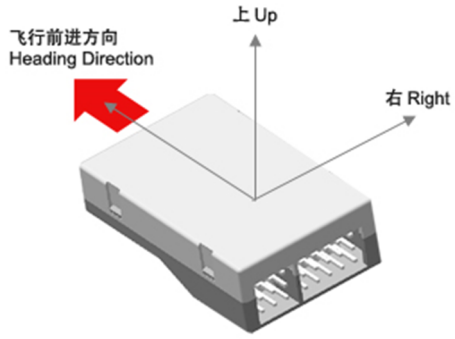
1. INSTALLATION

Use one of the supplied 3M pads to attach the gyro to your plane firmly. For best performance the gyro should be mounted as close to the C.G. as possible, and the housing edges must be aligned exactly parallel to all three rotation axis of the plane. The gyro can be attached flat or upright, and even upside down, however, you have to ensure the arrow on the sticker always point to the heading direction, otherwise the gyro will not work normally when operating it in Trainer mode, Auto-Level and Auto-Hover modes.

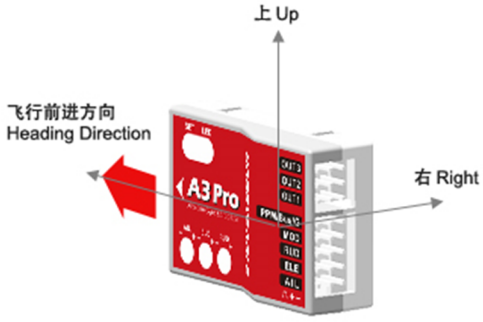
Flat: face up, socket pointing to rear.



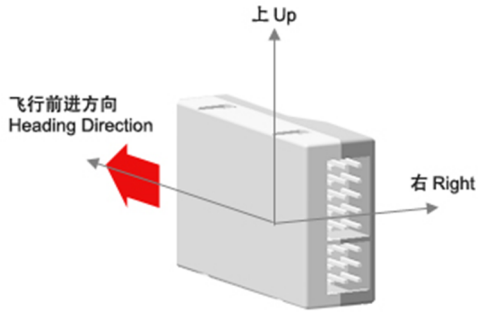
Flat Inverted: face down, socket pointing to rear.



Upright: button up, socket pointing to rear.



Upright Inverted: button down, socket pointing to rear.



CAUTION

1. You need only one piece of the tapes each time, a soft or thick mounting may probably impact the performance of the gyro.
2. Never use the hot-melt glue or nylon ties to fix the gyro onto the plane!
3. The gyro is a sensing device, please make enough space around it and keep as far away from other electronic devices or wires as possible.

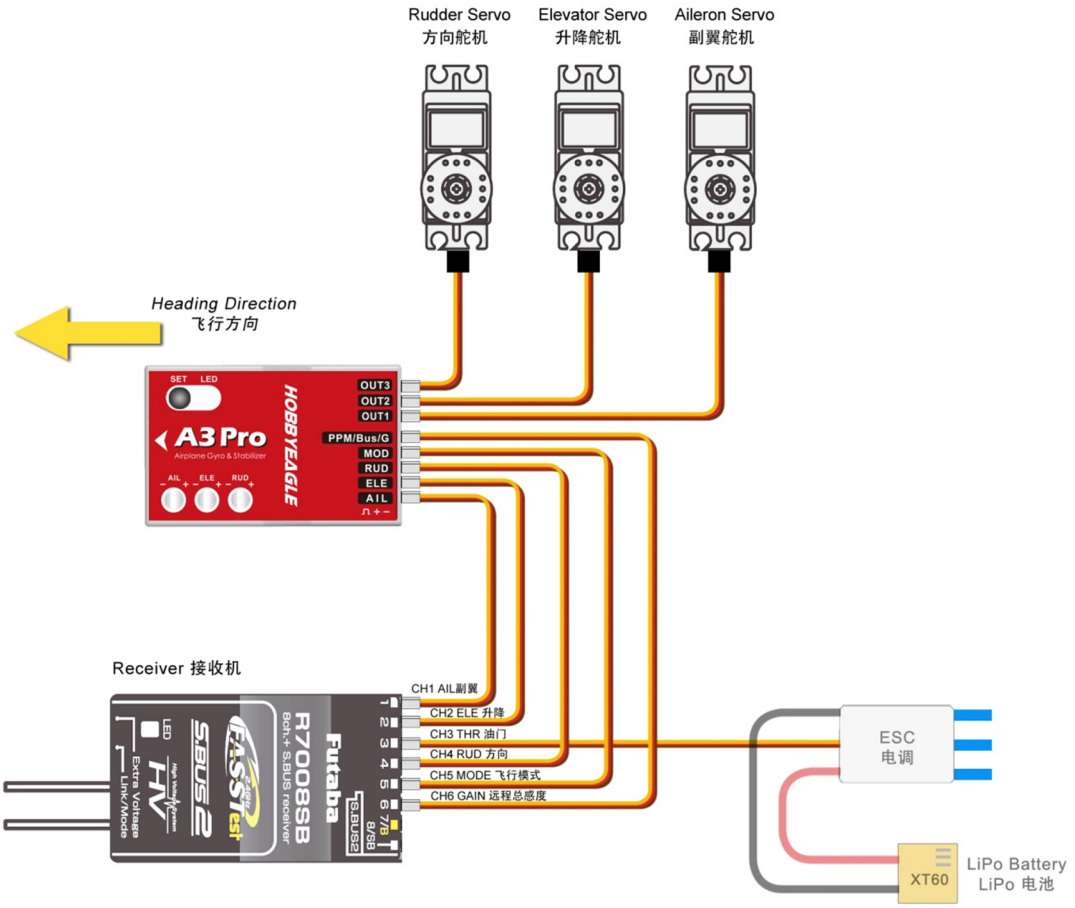
2. CONNECTION

A3 Pro has 5 separate input channels which used to connect to the receiver and 3 output channels for servos, and supports standard receivers, PPM and Futaba's S.BUS(or S.BUS 2) single-line receivers. [AIL], [ELE] and [RUD] should be connected to aileron, elevator and rudder channels of the receiver. [MOD] is used to change the flight mode using a 3-position switch of the transmitter. Usually you can connect it to the gear or any of aux channels of the receiver. Of course, you have the option to not connect this channel, if so, the gyro will always work in the mode which is set for position-1 in the Setup Menu. [PPM/Bus/G] is used for remote master gain, it allows you to adjust the master gain of the gyro by using a proportional knob or slider of the transmitter. However connecting this channel is not a must if you don't want to change the gain in the flight. [PPM/Bus/G] is also used as the input channel when a futaba's s.bus or PPM single-line receiver connection is being used.

Table 1: Port Description

Input Channel	Description	Output Channel	Description
AIL	To **Aileron** channel of the receiver	OUT1	To aileron servo
ELE	To **Elevator** channel of the receiver	OUT2	To elevator servo
RUD	To **Rudder** channel of the receiver	OUT3	To rudder servo
MOD	Flight Mode Control Channel		
PPM/Bus/G	Remote Master Gain Control; PPM or S.BUS input channel when using a single-line receiver.		

2.1. STANDARD RECEIVER CONNECTION



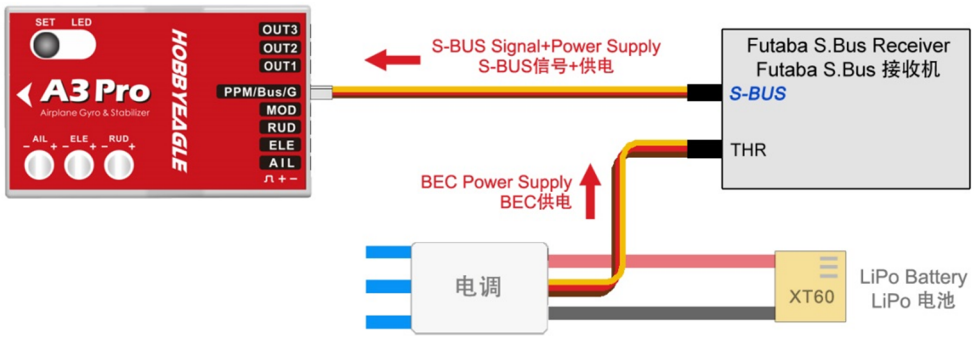
CAUTION

1. Pay attention to the polarity of the plugs. The orange signal line must always be on the top and the brown on the bottom.
2. Check all the connectors and make sure that all of them are firmly connected to the sockets.
3. Please refer to the instructions of your transmitter for setting up the 3-position switch for flight mode control, and the knob (or slider) for remote master gain control.

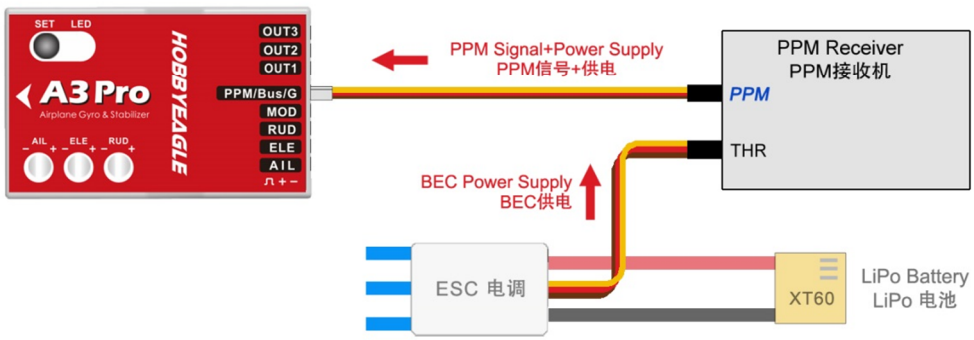
2.2. PPM, S.BUS SINGLE-LINE RECEIVER CONNECTION

Using a single-line receiver (e.g. PPM receiver or Futaba's S.Bus receiver) all channels are transferred by one single wire which connected to [PPM/Bus/G]. When a single-line receiver type has been selected, A3 Pro will load the default channel assignment to recognize the channels from receiver. The default assignment is: CH1=Aileron, CH2=Elevator, CH3=Throttle, CH4=Rudder, CH5=Flight Mode, CH6=Master Gain. You may program a different channel assignment manually in case the default assignment does not work with your transmitter's function layout. A3 Pro supports a maximum of 8 channels when using a single-line receiver. When programing the channel mapping, select "None" for those channels you don't want to use.

Futaba S-BUS / S-BUS 2 Connection
Futaba S-BUS / S-BUS 2 连接



PPM Single-line Connection
PPM单线连接



3. FLIGHT MODE

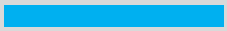
A3 Pro provides 6 different flight modes which can be changed by a 3-position switch of the transmitter during flight. The factory default setting of flight mode is **Normal - AttiLock - Trainner** in V1.1 and **GyroOff – Normal – AutoLevel** in V1.1b.

GYRO-OFF MODE

Solid Red 

Gyro-Off mode is usually used for testing purpose only. When this mode is selected, the gyro will be deactivated completely. The plane will be completely under the control of your transmitter as it was before installing the gyro.

NORMAL MODE

Solid Blue 

The Normal mode (also referred to as Rate mode) is the most basic function of the gyro. It works based on the rotation rate control of each axis of the plane. When operating in this mode, the gyro will only correct currently occurring rotational movements, a momentary reaction will be applied to the servos when the plane rotating on corresponding axis, after rotation the servos will move back to their neutral position as soon as the plane standing still immediately. Normal mode can be used with nearly any size and type of airplanes. It can effectively improve the stability and precision of the plane and reduce the stall point specially.

ATTI-LOCK MODE

Flashing Blue 

The Atti-Lock mode is also referred to as the 3D mode or AVCS mode. Different from normal mode, the gyro will perform a permanent correction for rotational movements on each axis constantly. That is when you release the sticks the plane will stop and lock its current position immediately. This operation mode is well suited for practicing basic 3D maneuvers such as hovering or knife edge, so we also call it 3D flight mode. Since it can help you to lock the attitude of the plane, it's also helpful for landing. **FYA: from V1.1, the attitude locking will take effect only when the sticks are in their center positions. When moving the sticks the gyro will switch to Normal mode automatically. This is an important change to the previous version.**

TRAINER MODE

Solid Violet 

In Trainer mode you can only tilt the plane to a certain angle by giving aileron or elevator stick input. Roll and loop are not allowed in this mode, the plane will be stabilized all the time, independent of any stick input. This prevents the plane from being tilted into a larger angle that may cause a danger. As soon as the sticks are released, the plane will be brought back to horizontal position automatically. You can use this mode as emergency rescue, or in other applications, e.g. to have a training for new beginners or to use for FPV. The maximum angle allowed of trainer mode can be set using the program card or the software. In addition, changing the stick rate can also affect the max tilt angle.

AUTO-LEVEL MODE

Flashing Violet 

When operating in Auto-Level mode, the plane will be brought to normal horizontal position automatically when releasing the sticks. Different from the Trainer mode, there is no maximum angle limitation in this mode and the plane will be stabilized only when there is no specific control inputs from aileron and elevator sticks. This mode can be used if the pilot becomes disoriented and would like to save the plane from crashing.

AUTO-HOVER MODE

Fast Flashing Violet 

The Auto-Hover mode provides the same functionality as the Auto-Level mode. The only difference is that when you release the sticks, the plane will be brought to vertical position (nose up) and keeps hovering. This flight mode is designed to help you to learn hovering maneuver and reduce the probability of crashing.

4. GAIN ADJUSTMENT

There are 3 trimming potentiometers on the front of the A3 Pro. They are used to adjust the basic gain of the gyro for aileron, elevator and rudder separately. Clockwise for increase, anticlockwise for decrease. Basic gain determines the momentary reaction strength of the gyro. In general the higher the gain the harder the plane will stop after rotation and the more stable and precise the plane will fly. But if the gain is too high the plane will tend to oscillate at high frequency on the corresponding axis. If too small, the operation and stability will not be so good and the plane does not stop precisely and overshoots. The gyro will be deactivated completely if you turn the basic gain to 0%.

For the first flight test it is recommended to start with a lower basic gain setting (e.g. 30%) and switch the gyro to normal mode. In case the plane starts to oscillate in flight then reduce the gain of the corresponding axis. If the control feels weak and imprecise and doesn't hold position when stopping then increase the gain, according to this approach, fine tune the basic gain until you get the best performance.

5. REMOTE MASTER GAIN

The [PPM/Bus/G] is used to control the master gain remotely. You can make a linear adjustment by using a knob or slider on your transmitter, or make a 3-level gain control using a 3-position switch. However connecting this channel is not a must if you don't connect it the master gain will always default to 100%.

6. ABOUT SETTING METHOD

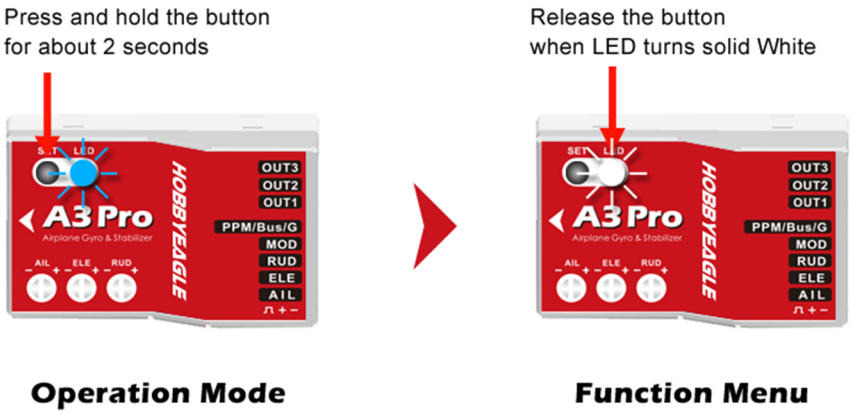
There are three menu levels. Function Menu, Setup Menu and Receiver Menu. They can be accessed by the following ways:

- To access the **Function Menu**, from ready mode (while the gyro is operating), press and hold the button for 2 seconds, release the button when LED lights solid White.
- To access the **Setup Menu**, from ready mode (while the gyro is operating), press and hold the button for 4 seconds, release the button when LED starts flashing White quickly.
- To access the **Receiver Menu**, press and hold the button while turn on the receiver power supply, release the button when LED lights solid Violet.

7. FUNCTION MENU

Entering the Function Menu

To get into the Function Menu, press the button down and don't release it until LED lights solid White.



Menu Selection

In the Function Menu, LED will flash Green several times every 3 seconds in a loop and the number of times LED flashes shows at which function item you are currently. For example, one Green flashing means the first function "servo trimming", after waiting about 3 seconds, a twice Green flashing means the second function "travel limiting", and so on. When you reach the function that you wish to operate in, short press the button to perform it. After the process is completed the gyro will get back into the operating mode, if you want to perform another function of the menu, you have to enter the Function Menu again.

Exiting the Menu

To get out of the current menu just keep the button pressed (2 seconds) again until LED starts flashing Green quickly.

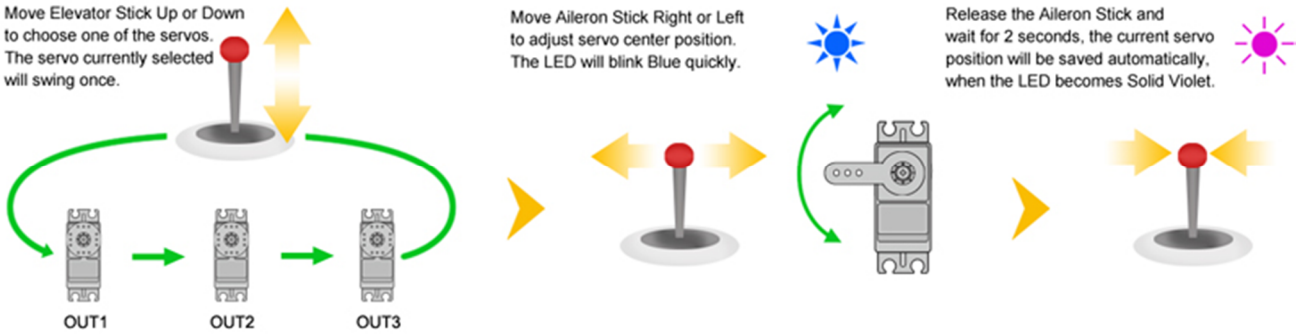
Table 2: FUNCTION MENU

	Functions	LED Status	
1	**Servo Trimming**		See 7.1
2	**Travel Limiting**		See 7.2
3	**Level Calibration**		See 7.3
4	**Hover Calibration**		See 7.4

7.1. SERVO TRIMMING

This function allows you to adjust the center position of the servos using the transmitter. It will be more convenient and more intuitive. After entering this procedure, move the elevator stick up or down to select one of the servos connected at [OUT1] to [OUT3]. The current servo will indicate its selection to you by a short up and down move. By default, the servo connected

at [OUT1] is always the first one selected after you entering the procedure.

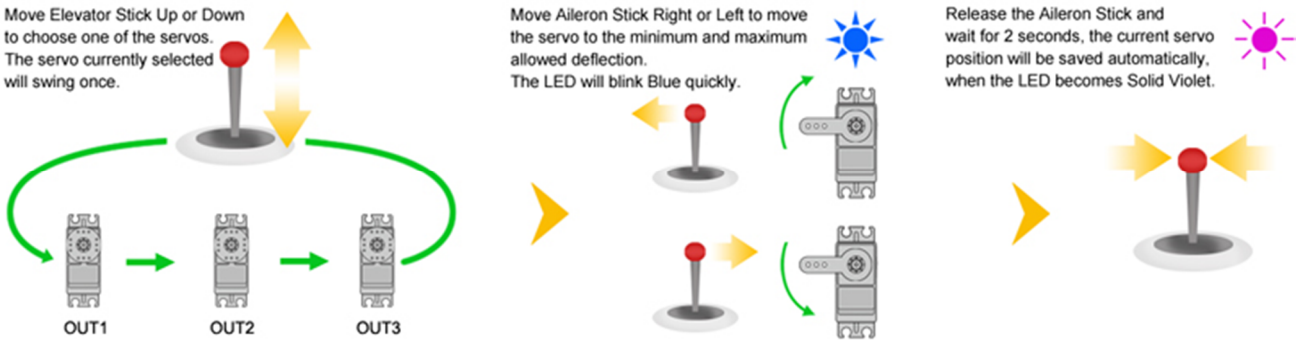


When the desired servo has been chosen, move and hold the aileron stick into one direction to change the center position for it, when it reaches the desired position release the aileron stick and wait for about 2 seconds until the LED turns solid violet, the current servo position will be saved as the new neutral automatically. While moving the servo, the LED will blink blue and a rapid red blinking indicates that the servo has reached the maximum center position allowed. The new neutral position of current servo will also be saved when you switching to the next servo.

After you have finished the setting, just flip the flight mode switch or long press the button again to exit.

7.2. TRAVEL LIMITING

This function allows you to adjust the travel limits of the servos using the transmitter. It will be more convenient and more intuitive. After entering this procedure, move the elevator stick up or down to select one of the servos connected at [OUT1] to [OUT3]. The current servo will indicate its selection to you by a short up and down move. By default, the servo connected at [OUT1] is always the first one selected after you entering the procedure.



When the desired servo has been chosen, move and hold the aileron stick into one direction to move the servo until it reaches the maximum allowed throw without any binding or stall, then release the aileron stick and wait for about 2 seconds until the LED turns solid violet, the current position will be saved as the new travel limit automatically. Then move the servo to the opposite direction and wait until also this position gets stored. While moving the servo, the LED will blink blue and a rapid red blinking indicates that the servo has reached the maximum allowed (i.e.150%). The new travel limit of current servo will also be saved when you switching to the next servo.

After you have finished the setting, just flip the flight mode switch or long press the button again to exit.

7.3. LEVEL CALIBRATION

When flying in Trainer mode or Auto-Level mode, A3 Pro needs to know the angle of the plane in both roll and pitch directions, this is achieved by calculating the attitude of its own. A small angle deviation caused by installation can lead to an unexpected behavior when flying in Trainer mode or Auto-Level mode. For this reason, a level calibration is recommended to offset the error caused by installation and to establish a proper level reference of your plane after installing the gyro.

Before calibrating, the plane should be placed on the horizontal ground and make the wing parallel to the ground. Make the plane slightly nose-up because a certain elevation angle is usually required to maintain level flight for most planes.

Short press the button when LED is flashing 3 times in the Function Menu, then LED will start blink Blue rapidly for several seconds, don't move the plane and keep its attitude until the calibration is done.

7.4. HOVER CALIBRATION

As a same reason, a hover calibration is recommended to perform after installation if you want to fly with Auto-Hover mode. The procedure is quite similar to that of level calibration. The only difference is in the first step. Before calibrating, you need to lift the plane and make it vertical to the ground instead of putting it on the ground.

Short press the button when LED is flashing 4 times in the Function Menu, then LED will start blink Blue rapidly for several seconds, don't move the plane and keep its attitude until the calibration is done.

8. SETUP MENU

The Setup Menu contains 7 setting functions which cover all parameters of the gyro you may need to setup.

Entering the Setup Menu

To get into the Setup Menu, press the button down and don't release it until LED starts flashing White quickly. (FYA: Don't release the button when LED turns solid White yet, or you will get into the Function Menu but not the Setup Menu.)

Menu Selection

In the Setup Menu, LED will flash White several times every 3 seconds in a loop and the number of times LED flashes shows at which function item you are currently. For example, one White flashing means the first setting "Wing Type", after waiting about 3 seconds, a twice White flashing means the second setting "Mount Orientation", and so on.

Option Selection

When you reach the function that you wish to operate in, short press the button to get into it. After entering in, the current selected option is indicated by the color of the LED. Each short press of the button advances the option to the next value. After you finish making your selection, just wait for 5 seconds until LED starts blink quickly which indicates that the modified is saved and then you will be brought back to the Setup Menu level automatically. If you don't want to change anything, just wait for timeout without any operation.

Quit Menu

To get out of the current menu just keep the button pressed (2 seconds) again until LED starts flashing White quickly.

Table 3: SETUP MENU (* is the default)

	Functions LED Status			Solid Red	Solid Green	Solid Blue	Solid Yellow	Solid White	Solid Violet
1	**Wing Type**		White, 1 flash	Standard *	Delta-wing	V-Tail			
2	**Mount Orientation**		White, 2 flashes	Flat *	Flat Inverted	Upright	Upright Inverted		
3	**Flight Mode**		White, 3 flashes						
	1	**Position-1**	Blue, 1 flash	Gyro-Off *	Normal	Atti-Lock	Trainer	Auto-Level	Auto-Hover
	2	**Position-2**	Blue, 2 flashes	Gyro-Off	Normal *	Atti-Lock	Trainer	Auto-Level	Auto-Hover
	3	**Position-3**	Blue, 3 flashes	Gyro-Off	Normal	Atti-Lock	Trainer	Auto-Level*	Auto-Hover
4	**Gyro Direction**		White, 4 flashes						
	1	**Aileron**	Blue, 1 flash	Normal *	Reversed				
	2	**Elevator**	Blue, 2 flashes	Normal *	Reversed				
	3	**Rudder**	Blue, 3 flashes	Normal *	Reversed				
5	**Max Tilt Angle**		White, 5 flashes	±30deg	±60deg*	±90deg			
6	**Servo Frequency**		White, 6 flashes	50Hz *	65Hz	165Hz	200Hz	270Hz	333Hz
7	**Gain Level**		White, 7 flashes	Small	Medium *	Large			

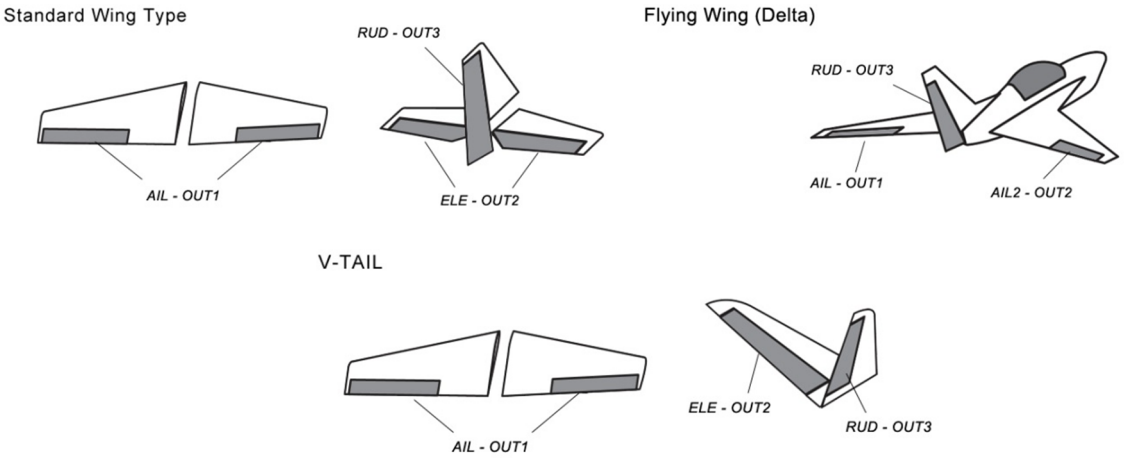
Notes: The factory default flight mode setting is "Normal – AttiLock – Trainer" in F/W V1.1 and "GyroOff – Normal – AutoLevel" in F/W V1.1b.

8.1. WING TYPE

A3 Pro supports standard fixed-wing, flying-wing (delta-wing) and V-tail. After entering in this function, the color of LED shows you the wing type currently selected. The default setting is Standard (Red), each short press of the button will switch to the next type. After you finish making your selection, just wait for 5 seconds until LED starts blink quickly which indicates that the modified is saved and then you will be brought back to the Setup Menu level automatically.

LED Color	Description
Solid Red	Standard (default)
Solid Green	Flying-wing (Delta-wing)
Solid Blue	V-tail

If you don't want to change anything, just wait for timeout without any operation.



CAUTION

1. Again make sure that there are no mixing functions active on your transmitter. Have a look at the radio's servo monitor and verify that each stick controls only one output channel ;
2. If two aileron servos are being used, please connect a Y-extended lead to [OUT1];
3. Most flying-wings have no rudder, in this case, [RUD] is unnecessary to connect.

8.2. MOUNT ORIENTATION

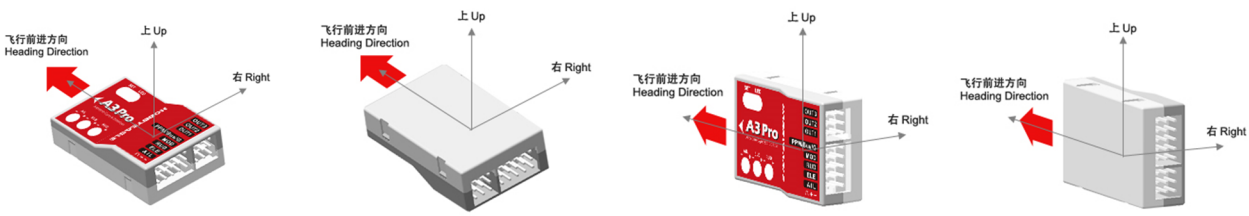
A3 Pro can be mounted flat or upright, and even upside down, however, you have to ensure the arrow on the sticker always point to the heading direction. After entering in this function, the color of LED shows you the orientation currently selected. The default setting is Flat (Red), each short press of the button will switch to the next type. After you finish making your selection, just wait for 5 seconds until LED starts blink quickly which indicates that the modified is saved and then you will be brought back to the Setup Menu level automatically.

LED Color	Description
Solid Red	Flat (default)
Solid Green	Flat Inverted
Solid Blue	Upright
Solid Yellow	Upright Inverted

If you don't want to change anything, just wait for timeout without any operation.

The setting here should be the same as the mounting orientation of your unit installed in the airplane, otherwise the gyro will not work normally.

Flat **Flat Inverted** **Upright** **Upright Inverted**



8.3. FLIGHT MODE

This function allows you preset the desired flight mode for each position of the switch. Short press the button when LED is flashing 3 times in the Setup Menu to get into the Position Selection Menu. In this second-level menu, LED will flash Blue several times every 3 seconds in a loop and the number of times LED flashes shows at which position you are currently. For example, one Blue flashing means “position-1”, after waiting about 3 seconds, a twice Blue flashing means “position-2”, and so on.

LED Color	Description
Solid Red	Gyro-Off Mode
Solid Green	Normal Mode
Solid Blue	Atti-Lock Mode
Solid Yellow	Trainer Mode
Solid White	Auto-Level Mode
Solid Violet	Auto-Hover Mode

When you reach the position that you wish to set, short press the button to get into it. After entering in the color of LED shows you the flight mode currently selected for this position. Each short press of the button will switch to the next mode. After you finish making your selection, just wait for 5 seconds until LED starts blink quickly which indicates that the modified is saved and then you will be brought back to the Position Selection Menu level automatically.

To get out of the position selection menu just keep the button pressed (2 seconds) again until LED starts flashing Blue quickly, then you will be brought back to the Setup Menu.

8.4. GYRO DIRECTION

Here you can reverse the gyro direction for aileron, elevator and rudder. Short press the button when LED is flashing 4 times in the Setup Menu to get into the Channel Selection Menu. In this second-level menu, LED will flash Blue several times every 3 seconds in a loop and the number of times LED flashes shows at which channel you are currently. For example, one Blue flashing means “Aileron”, after waiting about 3 seconds, a twice Blue flashing means “Elevator”, and so on.

LED Color	Description
Solid Red	Normal (default)
Solid Green	Reversed

When you reach the channel that you wish to set, short press the button to get into it. After entering in the color of LED shows you the direction currently selected for this channel. Each short press of the button will switch between Normal and Reversed. After you finish making your selection, just wait for 5 seconds until LED starts blink quickly which indicates that the modified is saved and then you will be brought back to the Channel Selection Menu level automatically.

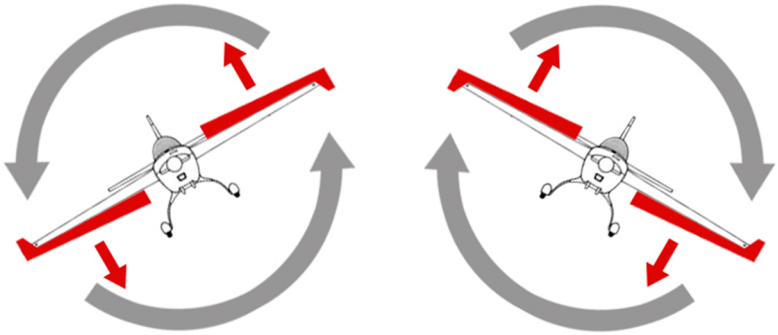
To get out of the channel selection menu just keep the button pressed (2 seconds) again until LED starts flashing Blue quickly, then you will be brought back to the Setup Menu.

CAUTION

It’s extremely important to make sure that the gyro reacts in the correct direction for each channel before flight. An opposite reaction of the gyro could lead to losing control or even crash!

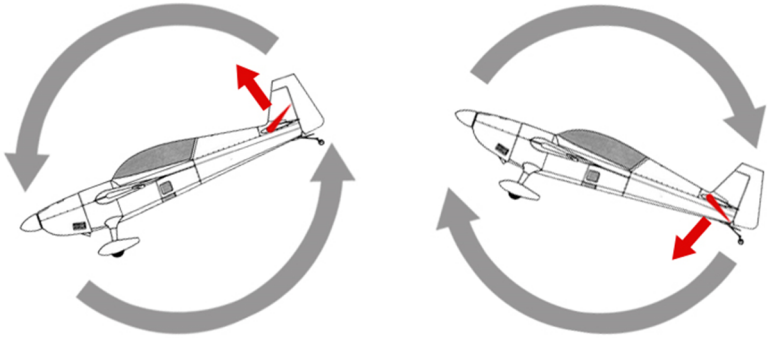
Check the gyro direction in aileron direction

Quickly move the right wing downward around the roll axis, the right aileron surface should flap down and the left flap up as shown below.



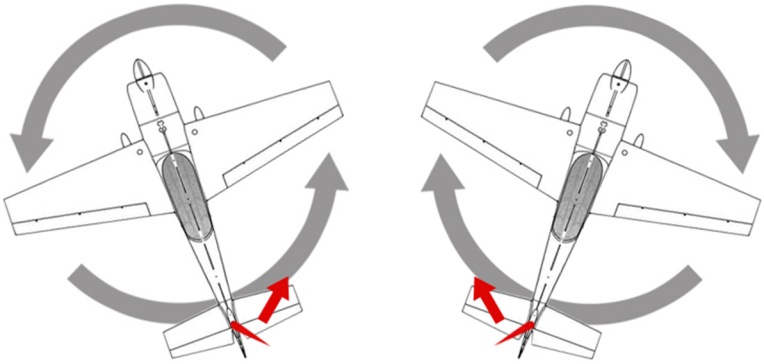
Check the gyro direction in elevator direction

Quickly move the nose of the plane downward around the pitch axis, the elevator surface should flap up as shown below.



Check the gyro direction in rudder direction

Quickly move the nose of the plane to the left around the yaw axis, the rudder surface should flap right as shown below.



8.5. MAX TILT ANGLE

This function is used to setup the maximum allowed tilt angle of the plane when operating in Trainer mode.

LED Color	Description
Solid Red	±30deg
Solid Green	±60deg (default)
Solid Blue	±90deg

After entering in this function, the color of LED shows you the angle currently selected. The default setting is ±60deg (Green), each short press of the button will switch to the next value. After you finish making your selection, just wait for 5 seconds until LED starts blink quickly which indicates that the modified is saved and then you will be brought back to the Setup Menu level automatically.

If you don't want to change anything, just wait for timeout without any operation.

8.6. SERVO FREQUENCY

This function is used to set the working frequency of the servos. The analog servos can only work with 50Hz. If you don't know what the maximum update rate that is tolerated by your servos never use more that 50Hz. The higher the frequency the better it is for the flight performance of the gyro but you must check the servo specifications before increasing the setting. Otherwise the servos may get damaged!

LED Color	Description
Solid Red	50Hz (default)
Solid Green	65Hz
Solid Blue	165Hz
Solid Yellow	200Hz
Solid White	270Hz
Solid Violet	333Hz

After entering in this function, the color of LED shows you the frequency currently selected. The default setting is 50Hz (Red), each short press of the button will switch to the next value. After you finish making your selection, just wait for 5 seconds until LED starts blink quickly which indicates that the modified is saved and then you will be brought back to the Setup Menu level automatically.

If you don't want to change anything, just wait for timeout without any operation.

8.7. GAIN LEVEL

This function is used to change the level of the basic gain. After entering in this function, the color of LED shows you the gain level currently selected. The default setting is Medium (Green), each short press of the button will switch between Small, Medium and Large. After you finish making your selection, just wait for 5 seconds until LED starts blink quickly which indicates that the modified is saved and then you will be brought back to the Setup Menu level automatically.

LED Color	Description
Solid Red	Small
Solid Green	Medium (default)
Solid Blue	Large

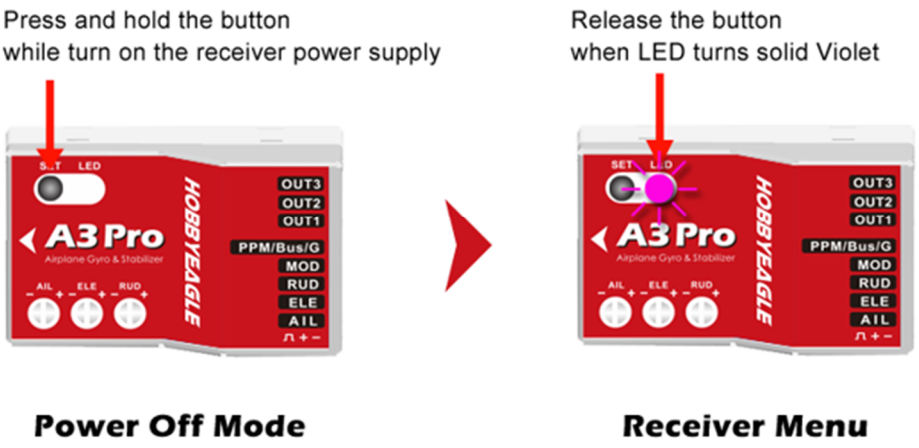
If you don't want to change anything, just wait for timeout without any operation.

9. RECEIVER MENU

The Receiver Menu allows you change the receiver type and program the channel mappings for all input channels.

Entering the Receiver Menu

To get into the Receiver Menu, press and hold the button while turn on the receiver power supply, release it when LED lights solid Violet.



Menu Selection

In the Receiver Menu, LED will flash Violet several times every 3 seconds in a loop and the number of times LED flashes shows at which function item you are currently. For example, one Violet flashing means the first setting “Receiver Type”, after waiting about 3 seconds, a twice Violet flashing means the second setting “Aileron channel”, and so on.

Option Selection

When you reach the function that you wish to operate in, short press the button to get into it. After entering in, the current selected option is indicated by the color of the LED. Each short press of the button advances the option to the next value. After you finish making your selection, just wait for 5 seconds until LED starts blink quickly which indicates that the modified is saved and then you will be brought back to the Receiver Menu level automatically. If you don’t want to change anything, just wait for timeout without any operation.

Quit Menu

To get out of the current menu just keep the button pressed (2 seconds) again until LED starts flashing Violet quickly. After exiting the Receiver Menu, the gyro will start the initialization normally, so the new receiver settings will take effect immediately without restarting the gyro. Also notice that the channel mapping setting will only take effect when PPM or Futaba S.Bus receiver type is chosen.

Table 4: RECEIVER MENU (* is the default)

	Functions LED Status	Solid Red	Solid Green	Solid Blue	Solid Yellow	Solid White	Solid Violet	Red Flashing	Green Flashing	Blue Flashing
1	**Receiver Type** Violet, 1 flash	Standard*	PPM	S.Bus						
2	**Aileron channel** Violet, 2 flashes	None	CH1*	CH2	CH3	CH4	CH5	CH6	CH7	CH8
3	**Elevator channel** Violet, 3 flashes	None	CH1	CH2*	CH3	CH4	CH5	CH6	CH7	CH8
4	**Rudder channel** Violet, 4 flashes	None	CH1	CH2	CH3	CH4*	CH5	CH6	CH7	CH8
5	**Mode channel** Violet, 5 flashes	None	CH1	CH2	CH3	CH4	CH5*	CH6	CH7	CH8
6	**Gain channel** Violet, 6 flashes	None	CH1	CH2	CH3	CH4	CH5	CH6*	CH7	CH8

10.ACCELEROMETER CALIBRATION

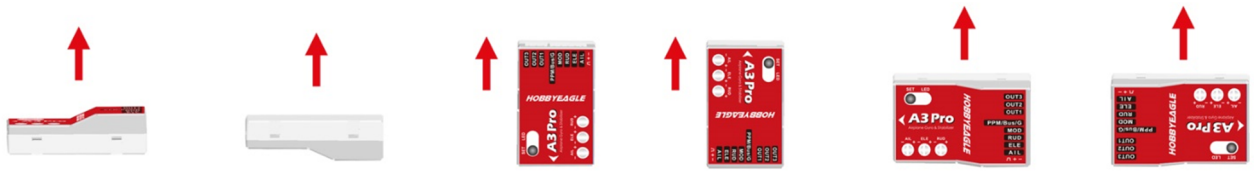
Before leaving the factory every unit has been carefully tested and calibrated. Usually you don't need to perform a calibration of the accelerometer during use. However, in some specific cases, we'd suggest you re-calibrate the accelerometer to obtain better performance, these include temperature changes those will probably cause the mechanical characteristics changes of the sensor, or replacement of new sensor, etc. The calibration should be done on a horizontal desktop and the gyro needs to be removed from the plane.

Entering the Calibration Program

To access the accelerometer calibration program, press and hold the button while turn on the receiver power supply, release it when LED starts flash Violet slowly. (FYA: Don't release the button when LED turns solid Violet yet, or you will get into the Receiver Menu but not the accelerometer calibration program.)

How to perform the calibration?

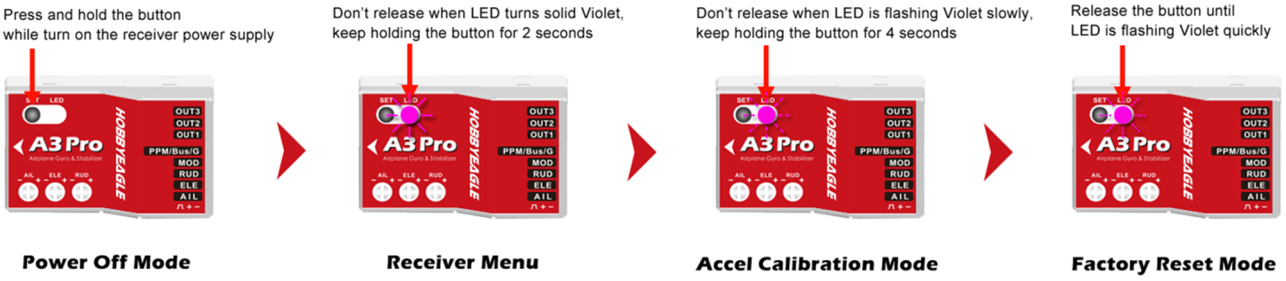
There are 6 steps corresponding to 6 different orientations that should be done step by step. Put the gyro on the table and fix it with your fingers, short press the button when you are ready to start. Each step will take about 2 seconds. While calibrating, LED will flash Blue several times and then light up solid in Blue. Don't move the gyro until the calibration is done. The steps below are not ordered so you can do in any sequence. After you have finished all 6 steps, LED will flash Violet once to save the calibration results and then start the initialization normally.



11.FACTORY RESET

Enter Factory Reset Mode

To reset the A3 Pro to factory settings, press and hold the button while turn on the receiver power supply, release it when LED starts flash Violet quickly. (FYA: You should need to hold the button for at least 8 seconds until the LED quickly blinks Violet to get into the reset program)



How to reset?

After entering the reset mode, the LED will blink in different colors. Press and hold the button for 2 seconds until LED flashes Violet once slowly to confirm the reset. After reset is done, the gyro will start the initialization normally. If you don't want to reset, just remove the battery when LED is blinking in different colors.

12.LED DESCRIPTIONS

	Blue, Flashing	Power-on initialization and self-test
	Solid Red	Gyro-Off Mode
	Solid Blue	Normal Mode
	Blue, Flashing	Atti-Lock Mode
	Solid Violet	Trainer Mode
	Violet, Flashing	Auto-Level Mode
	Violet, Fast Flashing	Auto-Hover Mode
	Red, Slow Flashing	TX signal lost. Check the connection to the receiver
	Red, Fast Flashing	Gyroscope sensor error
	Blue, Fast Flashing	Calibrating or testing

13.SPECIFICATIONS

Main Controller	32-bit MCU
Sensors	High-precision 3-axis gyroscope and 3-axis accelerometer
Gyroscope Scale Range	±2000dps
Accelerometer Scale Range	±4g
PWM	920uS ~ 2120uS with 1520uS center length / 50~333Hz
Input Voltage	4.8V～8.4V
Operating Temperature	-10℃～50℃
Size	43×27×14mm
Weight	10g (excluding wires)

* VOLTAGE PROTECTOR

It’s recommended to use the supplied 3300uF/16V capacitor to get a more stable and secure working voltage for the gyro. The capacitor can be plugged onto any one of the free input or output sockets of the gyro or the receiver.