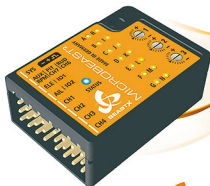


MICROBEAST² FLYBARLESS SYSTEM INSTRUCTION MANUAL 使用說明書

HEGBP301T

ALIGN



For Quickstart Guide V5.4
主程式V5.4 快速導覽版本專用

BEASTX MICROBEAST²

Thank you for buying ALIGN Products. Please read this manual carefully before assembling. We recommend that you keep this manual for future reference regarding tuning and maintenance.

承蒙閣下選用亞拓系列產品，謹表謝意。進入遙控世界之前必須告訴您許多相關的知識與注意事項，以確保您能夠在使用的過程中較得心應手。在開始操作之前，請務必詳閱本說明書，相信一定能夠給您帶來相當大的幫助，也請您妥善保管這本說明書，以作為日後參考。

Compatible with helicopter of all sizes from T-REX 250 to T-REX 800 MICROBEAST2 Flybarless System. Here we use T-REX 700 as an example .

MICROBEAST2 無平衡翼系統電子設備相容小型直昇機至大型直昇機T-REX 250~T-REX800。在此我們以T-REX 700作為操作範例。

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IMPORTANT NOTES

重要聲明

ALIGN

Radio Control (R/C) multicopters are not toys. R/C multicopters utilize various high-tech components to achieve superior performance. Improper use of this product can result in serious injury or even death. Please read this manual carefully before operating, and make sure to be conscious of your own personal safety and the safety of others nearby when operating all ALIGN products. Manufacturer and seller assume no liability for the operation or the use of this product. This product is intended for use only by adults with experience flying remote control aircraft at legal flying fields. After the sale of this product we cannot be held liable over its operation or usage.

We recommend that you seek the assistance of an experienced pilot before attempting to fly our products for the first time. A local expert is the best way to properly assemble, setup, and fly your model for the first time. This product requires a certain degree of skill to operate, and is an expendable item. Any damage or dissatisfaction as a result of accidents or modifications are not covered by any warranty and cannot be returned for repair or replacement. Please contact our distributors for free technical consultation and parts at discounted rates when you experience problems during operation or maintenance. As Align Corporation Limited has no control over the use, setup, assembly, modification or misuse, no liability shall be assumed nor accepted for any resulting damage or injury. By the act of use, setup or assembly, the user accepts all resulting liability.

In addition, R/C multicopters and its components are precision electronics susceptible to interferences from external forces such as magnetic field and radio signal. Should the multicopter or any onboard photographic equipment suffers loss or crash damage as result of external magnetic or radio interferences, Align cannot be held liable as the cause is beyond our control.

As the user of this product, you are solely responsible for operating in a manner that does not endanger yourself and others or result in damage to the property of others.




遙控飛行機包括遙控昇昇機與多軸飛行機（以下簡稱遙控飛行機）並非玩具，它是結合了許多高科技產品所設計出來的休閒用品，所以商品的使用不當或不熟悉都可能會造成嚴重傷害甚至死亡，使用之前請務必詳讀本說明書，勿輕忽並注意自身安全。注意！任何遙控飛行機的使用，製造商和經銷商是無法對使用者於零件使用的損耗異常或組裝不當所發生之意外負任何責任，本產品是提供給有操作遙控飛行機經驗的成人或有相當技術的人員在旁指導，並於當地合法遙控飛行場飛行，以確保安全無虞下操作使用。產品售出後本公司將不負任何操作和使用控制上的任何性能與安全責任。

遙控飛行機屬於需高操作技術且為消耗性之商品，如經拆裝使用後，會造成不等情況零件損耗，任何使用情況所造成商品不良或不滿意，將無法於保固條件內更換新品或退貨，如遇有使用操作維修問題，本公司全部分公司或代理商將提供技術指導、特價零件供應服務。對使用者的不當使用、設定、組裝、修改、或操作不良所造成的破損或傷害，本公司無法控制及負責。且遙控飛行機與配件之精密電子產品，易受外力、磁場、訊號干擾，在使用過程中如外力、磁場、訊號干擾，導致飛行機本身、及其搭載之攝影設備、器材之損壞或滅失，本公司亦無法控制及負責。

做為本產品的使用者，您，是單一對於您自己操作的環境及行為負全部的責任之人。

WARNING LABEL LEGEND

標誌代表涵義

 FORBIDDEN 禁止	Do not attempt under any circumstances. 在任何禁止的環境下，請勿嘗試操作。
 WARNING 警告	Mishandling due to failure to follow these instructions may result in serious damage or injury. 因為疏忽這些操作說明，而使用錯誤可能造成財產損失或嚴重傷害。
 CAUTION 注意	Mishandling due to failure to follow these instructions may result in danger. 因為疏忽這些操作說明，而使用錯誤可能造成危險。

SAFETY NOTES

安全注意事項

ALIGN

- Fly only in safe areas, away from other people. Do not operate R/C aircraft indoors or within the vicinity of homes or crowds of people. R/C aircraft are prone to accidents, failures, and crashes due to a variety of reasons including: lack of maintenance, pilot error, and radio interference. Pilots are responsible for their actions and damage or injury occurring during the operation or as a result of R/C aircraft models.
- Prior to every flight, carefully check all parts such as blades, screws, frame, arms, etc; ensure they are firmly secured and show no unusual wears, or unforeseen danger may happen.
- 遙控飛行機屬高危險性商品，飛行時務必遠離人群，禁止於室內飛行。人為組裝不當或未定期檢修造成的機件損壞、電子控制設備不良，以及操控上的不熟悉，都有可能導致飛行失控損傷等不可預期的意外，請飛行者務必注意飛行安全，並需了解自負疏忽所造成任何意外之責任。
- 每趟飛行前須仔細檢查機身各部位之零/配件/電子設備之性能是否正常，及無損耗老化現象，並確實將螺絲鎖緊才能升空飛行。並做好定期檢修，避免零件或電子產品異常所造成不可預期意外。

**FORBIDDEN
禁止**

LOCATE AN APPROPRIATE LOCATION

遠離障礙物及人群

R/C aircraft can fly at high speed, thus posing a certain degree of potential danger. Choose a legal flying field consisting of flat, smooth ground without obstacles. Do not fly near buildings, high voltage cables, or trees to ensure the safety of yourself, others, and your model. Avoid location with magnetic and radio interferences. Please choose a legal flying field. Do not fly your model in inclement weather, such as rain, wind, snow or darkness.

遙控飛行機飛行時具有一定的速度，相對的也潛在著危險性，場地的選擇也相對的重要，請遵守當地法規到合法遙控飛行場地飛行。必須注意周邊有沒有人、高樓、建築物、高壓電線、樹木等等，避免磁場干擾、外力訊號干擾及操控的不當造成自己與他人財產的損壞。請務必選擇在空曠合法專屬飛行場地，請勿在下雨、打雷、沙塵等惡劣天候下操作，以確保本身及機體的安全。

**CAUTION
注意**

KEEP AWAY FROM HEAT

遠離熱源

R/C aircraft are made of various forms of plastics, such as carbon fiber and polyethylene. Plastics are very susceptible to damage or deformation from extreme heat and cold climate. Make sure not to store the model near any source of heat such as oven or heater. / It is best to store the model indoors, in a climate-controlled, room temperature environment.

遙控飛行機多半是以碳纖維、PA纖維或聚乙烯、電子商品為主要材質，因此要盡量遠離熱源、日曬，以避免因高溫而變形甚至熔毀損壞的可能。

**FORBIDDEN
禁止**

PREVENT MOISTURE

遠離潮濕環境

R/C aircraft are composed of many precision electrical components. It is critical to keep the model and associated equipment away from moisture and other contaminants. The introduction or exposure to water or moisture in any form can cause the model to malfunction resulting in loss of use, or a crash. Do not operate or expose to rain or moisture.

遙控飛行機內部也是由許多精密的電子零組件組成，所以必須絕對的防止潮濕或水氣，避免在浴室或雨天時使用，防止水氣進入機身內部而導致機件及電子零件故障而引發不可預期的意外！





PROPER OPERATION

勿不當使用本產品

Do not attempt to modify the aircraft to alter its intended design. Please use only designated replacement parts listed in the manual to ensure its design structure integrity. Operate this product within its intended design parameters; do not overload it with excess cargo. This product is limited to personal hobby use, and pilot should be proficient with operation of this model. Follow all local law and ordinances when operating. Do not use this product for purposes which may violate others' personal privacy, and respect other's intellectual properties. Do not use this product for illegal purposes or beyond the bonds of common safety.

請勿自行改造加工，任何的升級改裝或維修，請使用亞拓產品目錄中的零件，以確保結構的安全。請確認於產品限界內操作，請勿過載使用，本產品為休閒娛樂專用之精密電子遙控飛行產品，僅限熟練遙控飛行器之個人使用，使用時請遵守當地法律規定，並嚴禁在任何違反公共安全區域操作。請勿利用本產品侵犯他人隱私/公開發權，並尊重他人智慧財產權、著作權，且勿用於安全、法令外之其它非法用途。並充分了解您任何的使用與操作必須負完全的責任。



DO NOT FLY ALONE

避免獨自操控

Before turning on your model and transmitter, check to make sure no one else is operating on the same frequency. Frequency interference can cause your model, or other models to crash. The guidance provided by an experienced pilot will be invaluable for the assembly, tuning, trimming, and actual first flight or unforeseen danger may happen. (Recommend you to practice with experienced pilots or with computer-based flight simulator firstly.)

至飛行前，需確認是否有相同頻率之同好正進行飛行，因為開啓相同頻率的發射機將導致自己與他人立即干擾等意外危險。遙控飛行機操控技巧在學習初期有著一定的難度，要盡量避免獨自操作飛行，需有經驗的人士在旁指導，才可以操控飛行，否則將可能造成不可預期的意外發生。(動線電腦模擬器及老手在場指導是入門必要的選擇)



SAFE OPERATION

安全操作

Operate this unit within your ability. Do not fly while feeling impaired, as improper operation may result in danger. Never take your eyes off the model or leave it unattended while it is turned on. Immediately turn off the model and transmitter when you have landed the model.

請於自己能力內及需要一定技術範圍內操作這台遙控飛行機，過於疲勞、精神不佳或當操作，意外發生風險將會提高。不可在視線範圍外飛行，降落後也請馬上關掉遙控飛行機和遙控器電源。



ALWAYS BE AWARE OF THE ROTATING BLADES

遠離運轉中零件

During the operation of the multicopter, the rotor will be spinning at a high rate of speed. The blades are capable of inflicting serious bodily injury and damage to surrounding properties. Be conscious of your actions, and careful to keep your face, eyes, hands, and loose clothing away from the blades. Always fly the model a safe distance from yourself and others, as well as surrounding objects.

遙控飛行機主旋翼/螺旋槳運轉時會以高轉速下進行，在高轉速下的主旋翼/螺旋槳會造成自己與他人在身體上或環境上的嚴重損傷，請勿觸摸運轉中的主旋翼/螺旋槳，並保持安全距離以避免造成危險及損壞。



MICROBEAST² SAFETY NOTES

MICROBEAST² 安全注意事項

ALIGN



CAUTION
注意

Radio controlled (R/C) helicopters are not toys! The rotor blades 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. You can gather information from your local R/C model club or from your national modelers association.

遙控直昇機不是玩具！螺旋槳高速旋轉帶來的潛在風險相當高，它們可能會導致嚴重的傷害，一切的使用要符合並遵守共同的安全規則，並且遵守當地的無線遙控模型協會制度規定。您可以從當地的模型俱樂部或從您的國家航模運動協會取得相關資訊。



CAUTION
注意

Pay attention to your own safety and the safety of other people and property in your vicinity when using our product. Always fly in areas away from other people. Never use R/C models in close proximity to housing areas or crowds of people. R/C models may malfunction or crash due to several reasons like piloting mistakes or radio interference, and cause severe accidents. Pilots are fully responsible for their actions, and for damage or injuries caused by the usage of their models.

注意自己與他人以及財物的安全，在您使用我們的產品時，請您遠離建築與人群。遙控直昇機可能在飛行中出現任何意外，可能是飛行員的操控失誤，或者是無線電干擾，並導致嚴重事故的發生。飛行員必須為自己的行為負完全責任，以及所造成的任何損害。



CAUTION
注意

Please read the following instructions thoroughly before the first use of your MICROBEAST² and setup the system carefully according to this manual. Allow sufficient time for the setup procedure and check each step carefully. Watch for a mechanically clean and proper build of your helicopter. A wrong system setup can lead to a serious accident and damage to the model.

設置 MICROBEAST² 時請仔細閱讀以下說明，並且一定要留出足夠的時間來仔細設定，並小心檢查每一個步驟。除此之外，也要特別注意無平衡翼旋翼頭的組裝是否正確，稍有差錯或機械故障，可能導致嚴重的事故發生。



CAUTION
注意

Radio controlled (R/C) models consist of several electrical components. It is therefore necessary to protect the model from moisture and other foreign substances. If the model is exposed to moisture this may lead to a malfunction which may cause damage to the model or a crash. Never fly in the rain or extremely high humidity.

無線遙控模型，是由許多電子零件組裝而成，因此有必要保護這些脆弱的電子零件，例如防水、防塵等工作。如果遙控模型受潮可能導致故障，請絕對不要在雨天或濕度極高的氣候中飛行。



CAUTION
注意

When operating the helicopter with a MICROBEAST² ensure there is a sufficiently large and stable receiver power supply. Because of the direct coupling of the rotor blades to the servos, without the use of a flybar mixer, the servos are exposed to increased actuating forces. In addition, because of the intermediary electronic gyro system, the servos are driven more often than with traditional use. These factors can make the power consumption increase a lot compared to a flybar helicopter. When the supply voltage falls below 3.5 volts for a short amount of time, the system will power off and reboot. In this case a crash of the helicopter is unavoidable.

操控您的直昇機時，請確保 MICROBEAST² 有一個充足、穩定的接收器電源。由於十字盤伺服直接連接十字盤、主旋翼，不像傳統貝爾希拉遙控旋翼頭那樣的省力，所以請特別注意！無平衡翼直昇機使用的伺服器會顯得特別的耗電，請務必確定您的供電系統有足夠的供電能力。若電壓低於 3.5V，即使是很短暫的時間，系統將關閉並重新啟動。在這種情況下，墜機是很難避免的。



CAUTION
注意

Do not expose the MICROBEAST² system to extreme variations in temperature. Before powering up the system, wait some time so that the electronics can acclimatize and any accumulated condensation is able to evaporate.

請勿讓 MICROBEAST² 在極端溫度變化的環境下飛行，例如從溫暖的室內短時間帶到寒冷的室外，環境轉換至少需有 20 分鐘以上的緩衝適應，讓電子零件上的水氣凝結揮發掉，才能夠通電開機。



CAUTION
注意

The sensors of MICROBEAST² consist of highly sensitive electromechanical components. These can be damaged due to moisture or mechanical or electrical impact. Do not continue using this product, if it has been exposed to such influences, e.g. due to a crash of the model or due to overvoltage caused by a defective receiver power supply. Otherwise a failure may happen any time.

MICROBEAST² 包括高度敏感的電子元件，它可能在潮濕的環境中、機械或電子的衝擊中受到損害。如果您的模型已經遭受過撞擊，或者接收器的電源供應不穩定等等，請不要繼續使用 MICROBEAST²，否則故障會不斷發生。



CAUTION
注意

When operating electric helicopters make sure that the electric motor cannot start inadvertently during the setup procedure. Particularly pay attention if using a single-line receiver and if the ESC is connected directly to the MICROBEAST². We recommend disconnecting the electric motor from the ESC during the setup procedure. Prior the first usage please slide the motor/pinion away from the main gear, then check that the motor does not start inadvertently when the receiver is switched on.

操作電動直昇機時，請確保電動馬達不會在安裝過程中無意間啟動。尤其要特別注意，如果您使用的是單線連接接收器，且 ESC 直接連接到 MICROBEAST²。我們建議在安裝過程中 ESC 不要連接電動馬達。在第一次使用之前，請滑動馬達/齒輪以遠離主齒輪，然後檢查馬達不會在開啓接收器時被啟動。



CAUTION
注意

When operating the RPM Governor feature of MICROBEAST² it is essential to ensure that the motor cannot start by accident when making adjustment or performing preparations to start the engine. Carefully read this manual and make sure you fully understand how the RPM Governor feature is operated before making any adjustments. Also make sure the motor does not start when the radio link is interrupted or when you switch on the transmitter initially. With electric driven models do not dock the motor to the main gear unless all necessary adjustment procedures have been finished. Always maintain sufficient safety distance to the motor and other rapidly rotating components of the helicopter.

操作 MICROBEAST² 的 RPM 定速模式時，請確保馬達不會在調整或準備啟動引擎過程中無意間被啟動。調整前請仔細閱讀本說明書了解 RPM 定速模式的運作特性，並請確保在開啓或關閉遙控器時，馬達不會被啟動。使用電動直昇機時請不要連接馬達與主齒輪，除非確定所有必要的調整已經完成。直昇機內的馬達及其他快速轉動的零件必須保持足夠的安全間隙。



CAUTION
注意

MICROBEAST² with AttitudeControl can be used as a flying aid for beginners as the reaction of the helicopter to stick inputs can be limited and as an electronic control circuit can help to stabilize the helicopter. However, this does not provide that the helicopter can always be flown safely! By incorrect control inputs the helicopter still may crash or be placed in a position in which the pilot becomes disoriented even when using AttitudeControl. In addition, the helicopter can drift due to external influences and it is not guaranteed that the artificial horizon of the device can stabilize the helicopter at any time and recover from any orientation. Influences such as temperature fluctuations or vibrations may cause incorrect results and distort the position calculation of the system in consequence. There is no guarantee that the system will always work correctly. Only the pilot is responsible for the control of the helicopter and thus also for the use of the system. You must always be able to turn off the system immediately and be able to take over full control of the helicopter.

MICROBEAST² 的姿態模式可以輔助初學者飛行，因為此模式可限制直昇機的搖桿輸入反應，且電子控制電路有助於穩定直昇機。但是，這並不保證直昇機可以安全飛行！不正確的指令輸入，即使是在姿態模式下，直昇機仍可能會墜機或者迷失方向。此外，直昇機可能受外部影響而漂移，我們無法保證可以隨時讓直昇機從任何方向恢復並自平。其他如氣溫的變化或振動都可能影響系統而會導致不正確的結果，造成系統計算失真。我們無法保證此系統總是能正常工作。只有飛手能負責直昇機的控制，以及正確使用本系統。請確保您能隨時立即關閉此平衡系統，並取回直昇機控制權。



CAUTION
注意

We suggest you to seek the support of an experienced helicopter pilot before you undertake the first flight of your model. Additionally, flight training with a R/C simulator can help make flying easier and more enjoyable. Ask your local dealer if you need technical support or if you observe problems during the usage of our system.

我們建議您尋求具有足夠經驗的遙控直昇機玩家，然後再進行第一次的MICROBEAST² 搭配飛行。此外，飛行訓練用的R/C模擬器可以幫助使飛行更簡單，更有樂趣。如果您有任何技術支援或系統使用的問題，請與當地代理連絡。



CAUTION
注意

AttitudeControl can help to facilitate flying of model helicopters by briefly passing over control to the system if the pilot becomes disoriented. By using the built-in artificial horizon the helicopter can be brought to a nearly horizontal position so that the pilot gains time to reorient. Thus there can be no assurance that the model is saved from a crash in general. Depending on the current attitude and the speed of the model and depending on how fast the AttitudeControl is activated, the model may crash before or while the system tries to recover. In addition, the helicopter can drift due to external influences and it is not guaranteed that the artificial horizon of the device can stabilize the helicopter at any time and recover from any orientation. Influences such as temperature fluctuations or vibrations may cause incorrect results and distort the position calculation of the system in consequence. Strictly observe the general safety rules for dealing with RC models and do not totally rely on the system. The pilot is responsible for the control of the helicopter and thus also for the use of the system. You must always be able to turn off the system immediately and be able to take over full control of the helicopter.

如果飛手在飛行中迷失方向，姿態模式可以快速控制系統，幫助操控直昇機。藉由使用內建自平功能，使直昇機接近水平位置，讓飛手有時間重新調整正確的方向。但仍不保證可以拯救失控的直昇機，系統介入的速度及反應主要是根據直昇機當時的姿態和速度而定，即使如此，該直昇機仍可能會在系統嘗試恢復時或之前墜機。此外，直昇機可能受外部影響而漂移，且無法保證可以隨時讓直昇機從任何方向恢復並自平。其他如氣溫的變化或振動都可能影響系統而會導致不正確的結果，且造成系統計算失真。我們無法保證此系統總是能正常工作。只有飛手能負責直昇機的控制，以及正確使用本系統。請確保您能隨時立即關閉此平衡系統，並取回直昇機控制權。

QUICKSTART GUIDE V5.4

V5.4快速導覽

ALIGN

Dear customer,

Thank you for purchasing our product.

MICROBEAST² is a high-end gyro system for RC helicopters that has been developed in Germany using latest technology and setting high standards. It can be used with many different types of helicopters like 3D aerobatic helis, F3C competition helicopters as well as scale helicopters with 2 or more rotorblades.

The system comes with BASIC flybarless stabilization functionality and can be upgraded by paid update to the PROEDITION. This enables additional features like AttitudeControl for rescue bailout or constant leveling and a feature called "Bank Switching" which allows to switch between parameter presets in flight to serve different flight conditions or flying styles.

To setup MICROBEAST² there is no need for any additional devices. All you need is your radio system and your helicopter. Thanks to the well proven "EasySetup" concept you can do all the necessary adjustment directly at the device and you're ready for take off within a few minutes.

This Quickstart Guide is a clearly arranged guide that will lead you step-by-step through the basic flight setup. Please follow this guide carefully and make sure to read the attached safety notes. For a detailed instruction manual and further details, tips, tricks and notes about the product please visit

WIKI.BEASTX.COM

親愛的客戶：

感謝您使用MICROBEAST² 無平衡翼控制系統！

MICROBEAST² 採用德國最新技術和最高標準，可適用於多種直昇機類型，像是3D飛行、F3C競賽或是雙槳直昇機搭載後真機殼等，不僅有基本的無平衡翼穩定系統，還有進階付費升級功能，此進階功能有姿態模式，可作為失控保護救援功能，在飛行時開啓姿態模式，系統會在不同的操作模式和應用程序之間進行選擇，然後精確地穩定直昇機的飛行。

設定MICROBEAST² 不需要任何其它設備，您只需要遙控器和您的直昇機，透過"EasySetUp"的概念您可以直接在無平衡翼控制系統上做任何設定，使您的直昇機能在幾分鐘之內迅速升空。

本快速入門指南將以非常簡單且明確的方法，一步一步帶領您完成基本的飛行設定，並請務必仔細閱讀其安全注意事項。關於詳細的使用說明書和更多的細節、技巧和注意事項，請瀏覽以下網站。

WIKI.BEASTX.COM

Designed for **STUDIOX**

If you like to get more insight into the system and like to have a more visualized type of setup you can use the StudioX App for PC/mac or StudioXm for your smartphone/tablet in combination with the USB2SYS interface (PC/mac) or BLE2SYS interface (smartphone/tablet) (optional available).

These apps are the source to get even more out of your device like saving/restoring parameters, firmware updates, loading preset hell configurations and making advanced adjustment to fully customize your MICROBEAST² to your needs.

StudioX can be downloaded from: STUDIOX.BEASTX.COM

STUDIOX設計理念

如果您希望更進一步瞭解系統設定內容或過程，以下選配功能可供使用，您可連接USB2SYS介面透過StudioX App在PC/MAC上設定，或連接BLE2SYS介面透過StudioXm在手機平板上設定。以上Apps系統提供儲存參數、軟體升級、下載參數和進階功能設定等，能更符合您使用MICROBEAST²的需求。

StudioX下載點: STUDIOX.BEASTX.COM

This guide is intended to be used with MICROBEAST 2 firmware version 5.2.x only! After power up when the Status-LED lights red, for a few seconds in the left row menu LEDs A and C indicate major version "5". The yellow LED next to I stands for "2".

本快速指南所描述的調整內容，只適合 MICROBEAST 2 Version 5.4.x 版本！開機後，Status-LED燈亮紅色，幾秒之後，在左排選單中LED燈號A和C顯示了主程式的版本"5"，LED燈號I亮黃燈代表"2"。



Bluetooth



1 HARDWARE INSTALLATION

硬體安裝方法

ALIGN



You can position MICROBEAST 2 flat or upright on the helicopter. The large socket must point to the front or to the rear of the helicopter.

MICROBEAST 2 可以平放或倒置安裝於直昇機上。最大的插口必須對準直昇機的前方或後方。最小的白色插口需對準 X 軸。

The small white socket must be aligned with the longitudinal axis. The sensor axis (housing edges of the device) must be aligned exactly parallel to all three rotation axis of the helicopter. However, it is allowed to position the device offset from the rotation axis.

傳感器軸 (MICROBEAST 2 的殼體邊) 必須準確地平行於直昇機的三個旋轉軸 (主軸、橫軸、尾傳動齒輪軸)。然而，其安裝位置在旋轉軸的範圍內即可。

In summary there are 8 mounting orientations possible:

- 1.flat, sticker on top, socket pointing to front*
- 2.upright, button up, socket pointing to front
- 3.flat, sticker showing to ground, socket pointing to front
- 4.upright, button down, socket pointing to front
- 5.flat, sticker on top, socket pointing to rear
- 6.upright, button up, socket pointing to rear
- 7.flat, sticker showing to ground, socket pointing to rear
- 8.upright, button down, socket pointing to rear

總共有八種不同安裝方向供您選擇：

- 1.平放 / 貼紙朝上側 / 插口朝飛行方向*。
- 2.垂直 / 按鈕朝上側 / 插口朝飛行方向。
- 3.平放倒置 / 貼紙朝底部 / 插口朝飛行方向。
- 4.垂直倒置 / 按鈕朝底部 / 插口朝飛行方向。
- 5.平放 / 貼紙朝上側 / 插口朝尾管。
- 6.垂直 / 按鈕朝上側 / 插口朝尾管。
- 7.平放倒置 / 貼紙朝底部 / 插口朝尾管。
- 8.垂直倒置 / 按鈕朝底部 / 插口朝尾管。



1.



2.



3.



4.



5.



6.



7.



8.

Flight Direction
飛行方向

Use one of the supplied 3M gyro pads to stick the device to your helicopter. The device housing must not directly touch the chassis of the helicopter. When connecting and laying out the servo and receiver wiring later onwards please make sure the wires do not pass tension to the MICROBEAST². It is not recommended to bundle or tie down the leads close to the MICROBEAST² device.

請使用隨貨附贈的 3M 陀螺儀專用泡棉來固定 MICROBEAST²。安裝 MICROBEAST² 時，請勿將連接線拉得太緊，請確保本體能保持足夠的晃動空間，這樣才不會因為連接線太緊而將震動傳遞到感應器。也不建議在靠近本體的地方纏繞或繫緊束帶。另一方面，所有線材皆須確實接好，以避免飛行時 MICROBEAST² 因離心力而脫落。特別是，請不要在接近 MICROBEAST² 的連接線上使用任何熱縮套管、保護套管來捆綁連接線。這會使電線僵硬不靈活，引起振動，進而影響到 MICROBEAST² 的功能。

2 CONNECTING THE RECEIVER

接收器連接

ALIGN



The illustration is only an example!

The function assignment of the transmitter determines which channel on the receiver controls which function.

此圖僅供參考

遙控器通道分配決定了個別接收器在遙控器通道上的控制功能。

The assignment of functions to the radio channels is mentioned in the manual of your radio system. Also you may find out the function assignment by checking your transmitter's servo monitor. The connectors of MICROBEAST² are assigned to the functions as follows:

AIL|CH5 = Aileron, ELE|DI1 = Elevator, RUD (orange wire) = Rudder, PIT (red wire) = Thrust, Aux (brown wire) = Gyro gain

The wires for aileron and elevator additionally transfer the power between MICROBEAST² and receiver.

Single-Line receivers

Using a Single-Line receiver all channels/functions are transferred by one single connection wire. This allows to use even more than 5 channels, i. e. for controlling the headspeed Governor, AttitudeControl function and additional output channels.

遙控器的通道分配，請參考遙控器說明書。您也可以查看遙控器的伺服器螢幕上查看功能分配。

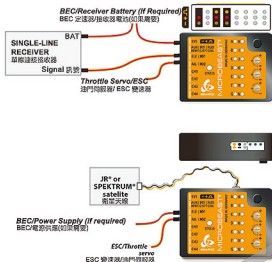
MICROBEAST² 的通道功能分配如下：

AIL|CH5 = 副翼；ELE|DI1 = 升降舵；RUD (橙色線) = 尾舵；PIT (紅色線) = 油門；Aux (棕色線) = 陀螺儀度

副翼和升降舵的連接線有額外的供電功能，可提供 MICROBEAST² 及接收器電源。

單線接收器連接

使用單線連接接收器時，所有通道/功能都是由一條連接線來傳遞。它允許超過 5 個以上的通道分配，可分配功能如：頭轉速 RPM 定速模式，姿態模式和額外的輸出通道。



Wiring scheme for Single-Line receivers with following transmission protocols:

支援接收器/遙控器類型：

- JR® Xbus (Mode B), Multiplex® SRXL (V1+V2)
- Jeti® UDI, Jeti® EXBUS
- Graupner/SJ® HOTT SUMD
- Spektrum® SRXL
- Futaba® SBUS
- ALIGN/FlySky iBus
- PPM serial signal (SPPM)

Remote satellite: DSM2/DSMX, ALIGN iBus, JR RJ-01 DMSS
Using a remote satellite is only intended for 450 size helis or smaller! For larger helis please use a full-size Single-Line receiver for your radio brand (i.e. SRXL)

使用衛星天線：
DSM2/DSMX, ALIGN iBus, JR RJ-01 DMSS
使用衛星天線，建議只使用在450級或更小的直昇機上！
若您的是直昇機是較大機型，建議使用單線伺服器連接法，例如：SRXL。

Always make sure the power supply is stable and dimensioned sufficiently for the intended application. If possible always connect the power source directly to MICROBEAST² (not at port [AUX/PIT/RUD]) in order to minimize contact resistance. Additional supply cables can be plugged into free receiver ports. Especially when using standard size servos it is recommended to use more than one power supply cable in parallel to preserve a stable voltage and to reduce power loss due to connection resistance.

請確定使用的電源規格符合系統要求。如果可能，請給MICROBEAST²一個直接的電源。(不必透過 AUX/PIT/RUD 端口)，為了減少傳輸電阻。連接線可插到一個閒置的接收機端口，尤其是在使用標準伺服器時，建議您使用一個以上的供電連接線，並使其保持平行而穩定的電壓，以減少因電流傳輸產生電阻而損耗功率。

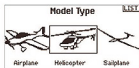
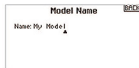
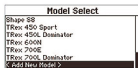
3 PREPARING YOUR TRANSMITTER

準備遙控器

ALIGN

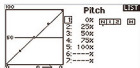
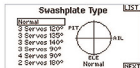
Create a new helicopter model memory in your transmitter that supplies different flight modes for controlling throttle, pitch and the tail gyro gain in different flight situations.

在您的遙控器上設置並儲存一個新的直昇機模式，它支援不同的飛行模式，在不同的情況下，控制油门，螺距和尾舵陀螺儀增益。



You must not use any mixing functions on the output channels! Especially it is not allowed to use mixing functions for the swashplate servos. Deactivate all output channels that are not used. In the basic configuration we only need pitch, aileron, elevator, rudder, throttle and one channel to adjust the tail gyro gain.

請注意！您不能在輸出通道上使用任何混控功能！特別要注意的是，十字盤的伺服器不允許使用混控功能。請關閉任何閒置的輸出通道。系統對基本通道的配置，只需要螺翼、副翼、升降舵、方向舵、油门和一箇通道來調整尾舵螺感度。

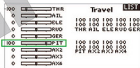
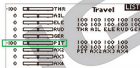


Each control function must exactly control one output channel. Initially the servo throws must be set to 100% and all trims and sub trims must be zero. For the basic setup do not change the pitch curves yet. The throttle curves and throttle servo settings can be adjusted as necessary for this model in case you do not intend to use the internal Headspeed Governor function of MICROBEAST².

每個輸出通道必須精確對應到一個控制功能。首先伺服輸出必須設置為100%，所有偏調和輔助偏調必須為零。基本設定並不會改變螺距曲線。油门曲線和油门伺服的設定，可以根據需要來調整，但前提是您不可改變MICROBEAST²的旋轉速度功能。

Only the pitch channel must be controlled when moving the thrust stick. The same applies to aileron, elevator and rudder.

移動螺距搖桿時，只需控制螺距通道。同樣應用於副翼、升降及尾舵。



For safety reason, remove the motor from the main gear when performing the basic setup on electric driven models! Additionally deactivate the throttle by using the "Throttle HOLD" switch, so the motor won't start to turn by accident when moving the thrust stick.

When flying a nitro or gasser heli remove the servo horn from the throttle servo before first power up to prevent jamming of the servo due to wrong servo setup.

基於安全理由，電動直昇機在初始設定時，請移除主齒輪上的馬達驅動齒輪！此外，請使用遙控器上的"Throttle HOLD"開關，來關閉油门，以確保在移動油门搖桿時馬達不會轉動。

飛行引擎直昇機，在第一次啟動引擎前，請先將油门伺服器移除，以免不小心或錯誤的設定而發動引擎，造成危險。

4 RECEIVER SETUP

接收器設定

ALIGN

To enter RECEIVER MENU MICROBEAST 2 must be switched off completely. Push and hold the button before and while powering on. The menu LEDs will start to cycle from A to N. Now you can release the button.

Make sure your transmitter is on and sending signals to the receiver. At menu point A you can start automatic receiver type detection by briefly pressing the button once. The color of the Status LED indicates which type is currently scanned for. When the receiver has been detected the menu will skip to point B; when there was some error the Status LED will flash in red color and the menu stays at A. In this case please make sure you've connected the receiver correctly and try again!

在進入接收器選單前，必須將 MICROBEAST 2 完全關閉。進入接收器選單時，請長按按鈕開機，此時選單 LED 會由第 A 點至第 N 點循環亮燈，即可放開按鈕。

請確認您的遙控器與接收器運作正常，在設定選單第 A 點，您可以輕壓按鈕一次，系統將自動偵測接收器類型，LED 狀態指示燈的顏色表示當前的選擇。當完成接收器偵測後，設定選單會跳至第 B 點。如接收器偵測有問題，則 Status LED 紅燈會閃爍，且停留在第 A 點，接著請確認您的接收器是否安裝正確後再重覆以上偵測程序。



Single-Line receiver (Status LED purple or blue at menu point A)

When at menu point B press and hold the button for 2 seconds to load the default function assignment that has been preset for the detected radio system. Alternatively you may program a different function assignment manually in case the default assignment does not match to your transmitter's function layout. How this works in detail you can read from the detailed instruction manual which you can get at wiki.beastx.com.

Preset function assignment for the different single-line receiver protocols (indicated by Status LED color at A and B):

單線連接接收器 (Status LED 燈熄滅，第 A 點紫/藍燈)

請長按第 B 點按鈕 2 秒，開始載入系統所預設之遙控器通道分配功能，如果系統預設的通道分配不符合您遙控器的需求，您也可以用手動的方式來分配遙控器通道之功能。更多的詳情，請參閱說明書，或瀏覽 wiki.beastx.com。

不同的單線連接接收器預設之通道分配功能 (依 Status LED 第 A 點和 B 點燈亮顯示所選擇之接收器)

● Spektrum® DSM2/DSMX/SRXL2, JR® RJ-01 DMSS or ALIGN® iBus remote satellite 衛星天線

THR	AIL	ELE	RUD	GER	PIT	AX2	AX3
Throttle[CH5] 油門[CH5]	Aileron 副翼	Elevator 升降舵	Rudder 尾舵	Gyro Gain 感度	Pitch 螺距	Aux[CH6] 輔助通道[CH6]	Governor* 定速模式*

☀ PPM serial signal(SPPM) 複合信號

CH1	CH2	CH3	CH4	CH5	CH6	CH7	CH8
Pitch 螺距	Aileron 副翼	Elevator 升降舵	Rudder 尾舵	Aux[CH6] 輔助通道[CH6]	Throttle[CH5] 油門[CH5]	Gyro Gain 感度	Governor* 定速模式*

☀ Futaba® SBus/SBus2 or BEASTX FASST compatible receiver 相容的接收器

CH1	CH2	CH3	CH4	CH5	CH6	CH7	CH8
Aileron 副翼	Elevator 升降舵	Throttle[CH5] 油門[CH5]	Rudder 尾舵	Gyro Gain 感度	Pitch 螺距	Aux[CH6] 輔助通道[CH6]	Governor* 定速模式*

Multiplex® SRXL v1 and v2, JR® XBUS Mode B, JETI® UDI 12+ 16ch

CH1	CH2	CH3	CH4	CH5	CH6	CH7	CH8
Aileron 副翼	Elevator 升降舵	Rudder 尾舵	Pitch 螺距	Throttle(CH5) 油門(CH5)	Gyro Gain 感度	Aux(CH5) 輔助通道(CH6)	Governor* 定速模式*

Graupner® SUMD

CH1	CH2	CH3	CH4	CH5	CH6	CH7	CH8
Pitch 螺距	Aileron 副翼	Elevator 升降舵	Rudder 尾舵	Aux(CH6) 輔助通道(CH6)	Throttle(CH5) 油門(CH5)	Gyro Gain 感度	Governor* 定速模式*

Spektrum® SRXL

THR	AIL	ELE	RUD	GER	PIT	AX2	AX3
Throttle(CH5) 油門(CH5)	Aileron 副翼	Elevator 升降舵	Rudder 尾舵	Gyro Gain 感度	Pitch 螺距	Aux(CH6) 輔助通道(CH6)	Governor* 定速模式*

*Governor channel is used to set headspeed for governor function with nitro or gas driven helicopters
*定速模式通道是用於引擎直昇機頭轉速定速功能使用。

Press and hold button
長按按鈕2秒



Menu LED 1 flashes
Status LED is **blue**
選單LED燈第1點閃爍
Status LED藍燈常亮

Release button
放開按鈕



Menu LED 1 flashes
Status LED flashes **red/blue**
選單LED燈第1點閃爍
Status LED紅藍燈同時閃爍

Press briefly
輕按按鈕



Make sure throttle is
in motor stop/failsafe
position
請確認油門搖桿是在馬達停止/失控保護位置



WARNING: At menu point N the throttle output CH5 is active, when using a electric helicopter the motor may start to run! Move the throttle to the desired failsafe position which is needed in case the receiver connection is interrupted oder gets disconnected. When a valid throttle position is detected, the Status LED flashes blue.

警告！在選單第 N 點，通道 5 [CH5] 油門輸出已經被開啟！當使用電動直昇機，馬達將可能會開始轉動，請將油門搖桿移到您理想的失控保護位置，如果使用者接收器，這裡就是中斷油門指令的位置。當系統偵測到油門搖桿在有效指令位置，LED 狀態指示燈會閃爍藍色。

When pushing the button after setting throttle failsafe position all the receiver settings will be stored. Then all menu LEDs will flash repeatedly and the system will reboot after 3 seconds.

Receiver with "Standard" 5-wire layout (Status LED off at menu point A)

Here the function assignment is simply determined by the order of physical connection of the wires to the receiver outputs. Assignment by software is not provided and will not appear when choosing this type of receiver. When a "Standard" receiver (Status LED blue at menu point A) was detected the receiver setup is finished and the system will reboot immediately. Menu point B will not appear!

完成油門失控保護的位置設定後，按下按鈕，接收器的設定將會被儲存紀錄，所有的選單LED將會重覆閃爍，系統將會在3秒後重新啟動。

5通道的傳統接收器(LED狀態指示燈第A點會熄滅)

若使用「傳統接收器」，只能利用接收器連接線的物理順序來決定通道功能。如果您選擇使用傳統接收器，系統所提供的通道分配功能和接收器類型將不會出現。因此當選單第A點選擇「Standard」後(第A點Status LED亮藍燈)，接收器的設定就等於完成了，系統將會馬上重新開機。選單第B點將會消失。

5 BASIC HELI SETUP MENU

基本直昇機設定(設定選單)

ALIGN

After power up or finishing RECEIVER MENU adjustment wait until the system has initialized
開機或完成接收機選單調整後，等待系統初始化

Firmware version: 5.4.x
主程式 V 5.4.x:



Calibration of
radio channels
遙控器通道校正



Calibration of sensor
rest positions
感應器位置校正



Operation mode
操作模式



Do not move sticks on
the radio!

請勿移動遙控器搖桿

Do not move the
helicopter!

請勿移動直昇機

Status LED lights up
blue or purple

Status LED 燈亮起
藍色或紫色

Then enter SETUP MENU for making the basic adjustments

然後進入設置選單進行基本調整

Press and hold (F) Button
長按按鈕



Keep button pressed
for 2 seconds
持續按著按鈕2秒



Release button when
LED A stops flashing
放開按鈕



Operation mode
(Status LED blue or purple)

操作模式
(Status LED 燈藍色或紫色)

Menu LED A flashes
(= PARAMETER MENU A)

設定選單 LED 燈第 A 點閃爍
(=參數選單)

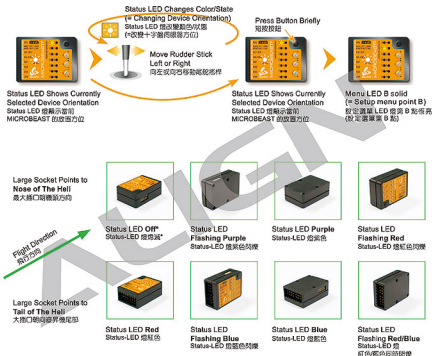
Menu LED A lights solid
(= SETUP MENU A)

設定選單 LED 燈第 A 點恆亮
(=設定選單第 A 點)

SETUP MENU POINT A - DEVICE ORIENTATION (MENU LED A SOLID LIT UP) 設定選單第 A 點-放置方位 (設定選單 LED 燈第 A 點恆亮)

Check the selected device orientation and change it if necessary by (repeatedly) moving the rudder stick into one direction until the Status LED color corresponds to the real device orientation. Then briefly push the button to save the setting and to proceed to the next menu point.

請檢查 MICROBEAST 所放置的方位是否正確，您可以將尾舵搖桿重複往一個方向移動，直到 Status-LED 燈號對應到 MICROBEAST 的方位為止。然後短按按鈕保存設定，並進入下一個選單點。



SETUP MENU POINTS B, C AND D

設定選單第 B、C、D 點

Adjust swashplate update rate (B), rudder servo pulse width (C) and rudder update rate (D) again by moving the rudder stick to one or another direction until the Status LED lights in the correct color necessary for the servos used in your helicopter. Briefly pressing the button will store the selected option and skip to the next menu point.

設定十字盤伺服器的更新速率(B)，尾舵中心頻寬(C)和尾舵更新速率(D)。請左右移動尾舵搖桿到一個方向，直到此選單點Status LED的顏色根據您的伺服器來選擇符合的燈號，然後短按按鈕，儲存您的選項，並移動到下一個選單點。



Status-LED Status-LED燈	Purple 紫色	Flashing Red 紅燈閃爍	Red 紅燈	Flashing Blue 藍燈閃爍	Blue 藍燈
B Swashplate update rate B 十字盤伺服器更新速率	50 Hz*	65 Hz	120 Hz	120 Hz	200 Hz
C Rudder Servo pulses width C 尾舵中心頻寬	760 μ s	—	960 μ s	—	1520 μ s*
D Rudder Update Rate D 尾舵更新速率	50 Hz*	120 Hz	270 Hz	333 Hz	(560 Hz)



注意

If you don't know the which update rate is best for your servos never use more than 50Hz.

The higher the update rate the better it is for the flight performance of MICROBEAST² but you must check the servo specifications before increasing the update rate. Otherwise the servos may get damaged! For a list with parameter examples for most common servo types see WIKI.BEASTX.COM.

For the rudder servo always use 1520 μ s servo pulse width, except you're using a very special type of servo with reduced pulse width (only these servo can be used with an increased update rate of 560 Hz!). Check the servo data sheet!

如果您不知道您的伺服器的更新速率，請最好不要設定超過 50Hz

較高的更新速率能讓 MICROBEAST² 有較好的飛行表現，但您必須先檢查所使用伺服器的規格是否符合系統要求。否則，錯誤的選擇會導致伺服器損壞！請瀏覽 WIKI.BEASTX.COM 查看更多符合無平衡翼直昇機常用的伺服器類型與參數表。

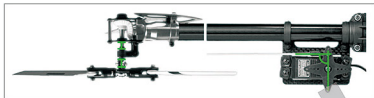
部分尾舵伺服器尾舵中心頻寬需要設定在 1520 μ s，除非您使用的是較特別的伺服器需要使用較低的頻寬（只有這種特別的伺服器會使用較高的更新速率 560Hz）。詳見伺服器 Data 資料表。

SETUP MENU POINT E - RUDDER SERVO LIMIT

設定選單第 E 點-尾舵伺服器極限

Plug the rudder servo connector into **CH4** output of MICROBEAST². Put the servo arm on the servo so that it forms roughly an angle of 90 degrees with the rudder linkage rod and adjust the length of the linkage rod as described in the helicopter manual.

請將尾舵伺服器連接線插入 MICROBEAST² 的 [CH4] 輸出通道，接著裝上伺服器臂，使其大約和尾舵連桿成 90 度垂直，並請依照并機說明書來調整連桿的長度。



Push and hold the rudder stick into one direction to move the rudder servo and release the stick when the servo reaches the maximum or minimum allowed servo throw. Using the rudder stick you can reposition the servo at any time to adjust the exact servo limit. If you do not touch the rudder stick for several seconds the current servo position will be saved as maximum or minimum (the Status LED will flash and then light up solid in **blue or red** color). Then move the servo to the opposite direction adjust as described above and wait until also this position gets stored (now Status LED becomes **purple**).

握住尾舵搖桿往左或右一邊方向移動，然後放開搖桿，使尾舵伺服器的行程量達到最大或最小，您可以利用尾舵搖桿隨時調整伺服器極限行程的精確位置。如果放開尾舵搖桿幾秒鐘，當前位置將被設定為最大或最小行程量，此時，LED 狀態指示燈會閃爍，然後變亮為藍色或紅色。同樣，如上所述移動搖桿往反方向設定，等待並儲存即可（此時 LED 狀態指示燈亮紫燈）。



Menu LED E Solid
Status LED Off
設定選單 LED 燈第 E 點常亮
且 Status-LED 燈熄滅



Use rudder stick to move the servo to the maximum allowed deflection
利用尾舵搖桿來移動伺服器，使其達到尾舵的最大容許偏轉率。



Release Rudder Stick
放開尾舵搖桿



Status LED Blue or Red
Status-LED 燈藍色或紅色



Use rudder stick to move the servo to the minimum allowed deflection
移動尾舵搖桿來調整伺服器至最小偏轉率。



Release Rudder Stick
放開尾舵搖桿



Press Button Briefly
短按按鈕

Status LED Purple
Status-LED 燈紫色



Menu LED F Solid
(= Setup Point F)
設定選單 LED 燈第 F 點常亮
(= 設定選單第 F 點)

SETUP MENU POINT F - RUDDER DIRECTION

設定選單第 F 點-尾舵方向

1. Move the rudder stick and check the rudder direction on the helicopter.

1. 將尾舵搖桿往一個方向移動，確認直昇機尾舵方向是否正確。



Rudder stick to the right
尾舵搖桿往右

Correct
正確



Tail rotor pushes tail left,
so heli turns to right.
尾旋翼向左移，所以直昇機會轉向右



Wrong
錯誤



Tail rotor pushes tail right,
so heli turns to left.
尾旋翼向右移，所以直昇機會轉向左



If the stick is moving the servo into the wrong direction use the **servo reverse function of your transmitter** and reverse the rudder channel to change stick control direction.

移動尾舵搖桿來檢查尾舵伺服器移動的方向是否正確，如果方向不正確，請利用遙控器的反向功能來調整即可。



2. Now set the rudder direction of the MICROBEAST 2 gyro

When you move the rudder stick to the **right**, the Status LED must light up or flash in **blue** color. When you move the rudder stick to the **left**, the Status LED must light up or flash in **red** color. When the display is inverted (red = right and blue = left) reverse the display (internal control direction) by tapping the aileron(!) stick once.

2. 設定 MICROBEAST² 尾舵陀螺儀方向

當您將尾舵搖桿往右時，Status LED 燈號藍燈會閃爍，當尾舵搖桿往左時，Status LED 燈號紅燈會閃爍。如果燈號反向顯示（紅燈=往右/藍燈=往左），請輕推副翼(!)搖桿一次，即可反向設定燈號（內定控制方向）。



Rudder stick to the right
尾舵搖桿往右

Correct
正確



Status LED blue
Status LED 藍燈



Tap aileron stick to swap colors

輕推副翼搖桿反向設定燈號

Wrong
錯誤



Status LED red
Status LED 紅燈

Always set servo direction in the transmitter first, then check the display on the MICROBEAST² or in the software and change the internal control direction if it does not match the real direction. **Do not change the internal direction in order to change the servo direction! This is only used for telling the gyro in which direction it must move the servo.** Be very conscientious when doing this setup step, as wrong gyro direction will cause loss of control during takeoff and you probably crash the helicopter!

請儘先在遙控器設定伺服器方向，然後確認 MICROBEAST² 上或介面上的伺服器方向顯示是否正確，如有異請修正並設定反向，確保方向正確。請不要更改內定控制方向來修正伺服器移動方向，因為內定控制方向是下指令給陀螺儀使它向伺服器移動到某一方位。所以請務必小心此設定，陀螺儀方向錯誤將可能造成起飛失控，甚至可能會造成摔機。

3. Optional: When you move the rudder stick to full deflection, the Status LED should light solid, not just flash. If this is not the case, **increase the servo throw/endpoint of the rudder channel in the transmitter just as far so that the Status LED changes from flashing to solid when the rudder stick reaches the end position.** Note: Do not increase the endpoint too much in the transmitter. We need an exact match of full stick position and stick end position, the Status LED should just change from flashing to solid when reaching the end position.

3. 補充：當尾舵搖桿移動至極限行程，Status LED會恆亮，並不會閃爍。如果燈顯示異常，請在遙控器中的尾舵通道選項增加伺服行程量，直到達到極限行程量時，Status LED燈由閃爍轉為恆亮。請注意：請勿在遙控器中增加過量的伺服行程量，當Status LED燈剛好由閃爍轉為恆亮時，此時的極限行程量最精準。

SETUP MENU POINT G - SWASHPLATE MIXING TYPE

設定選單第 G 點-十字盤混控類型



Status LED shows currently selected mixing type
Status LED燈顯示目前選擇的混控類型



Status LED shows currently selected mixing type
Status LED燈顯示目前選擇的混控類型

Status-LED Status-LED燈	Purple 紫色	Flashing Red 紅燈閃爍	Red 紅色	Flashing Blue 藍燈閃爍	Blue 藍色
G Swashplate mixing type G 十字盤混控類型	Mechanical 機械	90°	120°	140°	135°/140°(1:1)

For ALIGN® T-REX helicopters you can keep the default setting of 120 degrees electronic swash mixing (Status LED solid red).

使用ALIGN T-REX直昇機，建議可以使用十字盤混控類型系統預設120度(Status LED燈紅色恆亮)。



Never use any swashplate mixing in your transmitter even when electronic mixing is required!

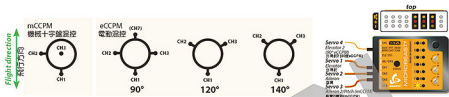
Deactivate the swashplate mixing in your transmitter or set it to mechanical mixing (which is often called "normal", "H1" or "1 servo" mixing), so that each stick function only moves one receiver output channel. The swashplate mixing is all done by MICROBEAST[®]!

請勿使用遙控器中的任何十字盤混控功能，即使電動混控是必須的。

請關閉您遙控器中十字盤混控功能或設定為機械混控(簡稱"Normal"或"H1"或"1 Servo"混控)，保持每一搖桿僅能控制單一接收通道。所有的十字盤混控會由MICROBEAST[®] 控制完成。

In the following connect the servos to the outputs marked with **CH1 to CH3 (CH7)** as shown below. With electronic swashplate mixing the two aileron servos have to be connected to CH2 (=left) and CH3 (=right). With a mechanical mixed head (H1) the aileron servo connects to CH2 and collective pitch servo to CH3. Plug the the elevator servo into CH1 port. When using a scale helicopter with 90 degrees eCCPM you can connect a second elevator servo to CH7 output on the MICROBEAST 2. Note that CH7 only is a signal output, so you must power the servo from elsewhere, i.e. by getting power from the SYS-port or CH5 using a Y-adapter (for + and - only!).

請勿使用遙控器中的任何十字盤混控功能，即使電動混控是必須的。
請關閉您遙控器中十字盤混控功能或設定為機械混控（簡稱“Normal”或“H1”或“1 Servo”混控），保持每一搖桿僅能控制單一接收通道。所有的十字盤混控會由MICROBEAST² 控制/完成。



When you route the wire leads in your model make sure that there is no tension passed to the MICROBEAST². Make sure that MICROBEAST² is able to move freely, so no vibrations get passed onto the unit by the wire leads. Do not use any shrink tubing or fabric hose to bundle or encase the wiring in close proximity to the point at which the cables are plugged into the MICROBEAST². This makes the cables stiff and inflexible and can cause vibrations being transmitted to MICROBEAST².

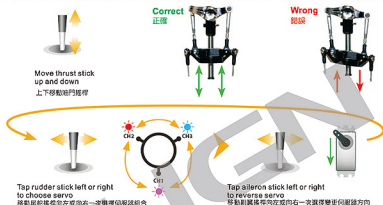
安裝接線時，請適度保留線材的連接長度，確保連接至MICROBEAST²時不可過緊，留有可調空間，避免震動影響MICROBEAST²。連接線材靠近MICROBEAST²的位置，請勿使用任何收縮管或布料軟管固定/紮線材，因為這會使線材變得僵硬且不靈活，並可能導致震動、影響MICROBEAST²。

SETUP MENU POINT H - SWASHPLATE SERVO DIRECTIONS

設定選單第 H 點-十字盤伺服器方向

Move the thrust stick and check whether all servos push the swashplate up and down simultaneously. If this is not the case by tapping the rudder stick you can select one servo after another. Every color of the Status-LED is corresponding to a specific servo channel that is indicating its selection by a short up and down move. Then tap the aileron stick once to switch the servo direction of the selected servo. You can switch back and forth between the servos as often as you need.

移動油門搖桿來檢查伺服器行程是否正確，十字盤將會向上或向下推動。如果動作不正確，可移動舵舵搖桿切換選擇十字盤伺服器，一個Status LED指示燈代表一個十字盤伺服器，十字盤伺服器會快速上下移動，表示目前選擇的伺服器設定。輕推副翼搖桿一次來變更所選擇的十字盤伺服器方向，根據您的需求，您可多次重複以上搖桿切換動作。



After adjusting servo directions, finally make sure that the pitch direction is correct! You can either do this by setting the servo directions correctly right from the beginning or by changing the direction of the pitch control channel in the transmitter.

完成伺服器方向設定後，最後請再確認螺距方向是否正確。您可以一開始就正確地設定伺服器方向，或待一會兒在遙控器上變更螺距通道方向。

Please note: It's not possible to reverse the servos with the servo reverse function of your transmitter! The transmitter only controls the functions of MICROBEAST², not the servos! Reversing a channel in the transmitter will reverse the control function in total, not the direction of a single servo (except when using mCCPM swashplate mixing).

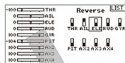
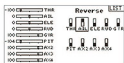
請注意：您無法在遙控器上使用反向功能變更伺服器方向！遙控器只能控制MICROBEAST²，無法控制伺服器！所以遙控器反向功能會將所有設定值都設為反向，並不會只改變單一伺服器方向。（如您使用的是mCCPM十字盤混控類型，則另當別論。）

SETUP MENU POINT 1 - SWASHPLATE CONTROL DIRECTIONS

設定選單第1點-十字盤控制方向

1. If not already done, move the stick(s) for aileron and elevator on the radio and check whether the swashplate is moved in the correct directions on the helicopter. The swashplate must follow the stick movement: pushing elevator forward will tilt the swashplate forwards, adding aileron to the right will move the swash to the right and so on. **If the stick is moving the swashplate into the wrong direction use the reverse function of your transmitter and reverse the aileron and/or elevator channel to set stick control direction correctly.**

1. 如果此動作還未完成，請移動升降舵和副翼搖桿來確認直昇機的十字盤方向是否正確。十字盤動作必須遵循搖桿動作指令：將升降舵搖桿往前移，十字盤會向前傾，再將副翼搖桿往右，十字盤也會跟著向右傾。如果十字盤動作和搖桿動作方向不一致，請在遙控器上設定反向功能，轉換升降舵和副翼搖桿的動作方向，使搖桿與十字盤動作方向一致。



2. Now when the swashplate moves correctly, set the internal control direction of the MICROBEAST² gyro. Pushing elevator forward and steering aileron to the right, the Status LED must light in blue color. If it doesn't, tap the rudder stick until this is the case.

2. 如果十字盤動作和搖桿動作方向一致，現在開始設定 MICROBEAST² 陀螺儀的內部控制方向。將升降舵往前移、同時將副翼搖桿往右移，Status LED 指示燈會亮藍燈。如果藍燈未亮，請輕推尾舵搖桿直到藍燈亮起。



Elevator forward
Aileron to the right
移動升降舵桿往前、
副翼桿往右

Correct
正確



Status LED blue
Status-LED 亮藍色



Tap rudder stick
until color is correct
輕推尾舵桿直到燈變藍色正確

Wrong
錯誤



Status LED red
Status-LED 亮紅色

Wrong
錯誤



Status LED purple
Status-LED 亮紫色

There are four possible options, only one is correct! Always set control directions in the transmitter first, then check the display on the MICROBEAST² or in the software and change the internal control direction, if it does not match the real direction. Be very careful here as this teaches the control directions to the system. When the directions are not set correctly, the system will move the helicopter into wrong direction which will result in a crash!

共有4種可能的選項，僅有1個是正確的！請務必先在遙控器中設定十字盤控制方向，接著在 MICROBEAST² 陀螺儀或軟體上確認顯示是否正確。如方向不正確，請同時修正 MICROBEAST² 內部控制方向。請務必在系統中確認十字盤控制方式是否正確，如果方向不正確，飛行時系統將會引導機子飛往錯誤的方向，導致墜機等飛行失誤。

SETUP MENU POINT J - SWASHPLATE SERVO TRIM

設定選單第 J 點-十字盤伺服器微調

At SETUP MENU point J we trim the servo center positions, so that each servo horn forms an exact 90 degrees angle with the adjustment linkage. This is necessary as you will not be able to attach the servo horns in exact center position to the servo. After all servos have been trimmed do not proceed to the next menu point, yet. With active trimming, adjust the linkage rods according to your helicopter's manual.

Initially when the trimming is 0 on all servos the Status LED will be off. Attach the servo horns in center position as good as possible. By tapping the rudder stick you can select one servo after another. Every color of the Status-LED is corresponding to a specific servo channel that is indicating its selection by a short up and down move. Use the aileron stick to change the servo trimming/adjust the center position of the selected servo. You can switch back and forth between the servos as often as you need.

設定選單第 J 點是調整伺服器中心位置，使每一伺服器與伺服器連接桿精確地定位於 90 度的位置。這是必須的調整過程，因為您通常無法精確地將伺服器臂定位至伺服器中心點。當所有伺服器都已調整完成後，請不要跳至下一設定選單，請再根據您直升機說明書內容微調伺服器連接。

首先，當所有伺服器微調為 0 時，Status LED 燈熄滅，接著請盡可能將伺服器臂調至中心點，移動舵柄搖桿選擇要調整的伺服器組合。一個 Status LED 燈代表一個伺服器組合，快速上下移動顯示目前選擇的伺服器設定。移動副翼搖桿向前/向後調整/校正所選擇的伺服器中心位置，根據您的需求，您可多次重覆以上搖桿切換動作來選擇十字盤伺服器。



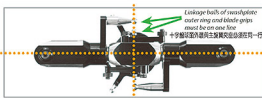
When you've perfectly adjusted the servos now adjust the linkage rods going from servos to the swashplate and from the swashplate to the blade grips. The swashplate must be leveled and centered on the main shaft and the blade grips should be set to 0° of pitch.

當伺服器調整完成時，接著調整連接伺服器連接桿動作：連接十字盤至伺服器組的連接桿與十字盤至主旋翼夾座的連接桿。十字盤的位置必須置中垂直於主軸，主旋翼夾座的傾度必須為 0 度。



If necessary adjust the swashplate anti-rotation guide so that the swashplate phasing is not shifted (only applies to 2-blade rotorheads).

必要時可調整十字盤的控制桿，使其與十字盤定相 (swashplate phasing) (僅適用於雙槳旋翼夾座調整系統)。



Hint: To reset the servo trims push and hold the button for at least 10 seconds.

Optional: Push and hold the button for 2 seconds, then release. This will switch into the swashplate trim mode.

提示：長按按鈕至少 10 秒，可重設伺服器微調系統預設值。
補充：長按按鈕 2 秒，然後放開按鈕，可切換至十字盤微調模式。



SETUP MENU POINT K - SWASHPLATE SERVO THROW

設定選單第 K 點-十字盤伺服器行程量



Align rotorhead and rotorblades in parallel to the helicopter's longitudinal axis. Attach a pitch gauge/level meter to one of the rotor blades or to a blade grip in order to **measure aileron pitch**. Use your smartphone to scan QR Code or link to Align website for more complete instruction:

http://shop.align.com.tw/index.php?cPath=11_35_351&page=1&language=tw

Align 直升機的頭部和旋翼頭的設計是平行於直升機的 X 軸，並且提供螺絲規和十字盤校正器(免購品)，可以用來校正螺距，非常方便好用，請參考相關網頁。手機掃描 QR Code 將會有更完整的亞拓產品介紹。若手機無法掃描 QR Code 請上亞拓官網

http://shop.align.com.tw/index.php?cPath=11_35_351&page=1&language=tw

At SETUP MENU point K we adjust the internal servo throw so that MICROBEAST 2 has a reference on how far it must move the servos when controlling the helicopter. To set the throw you have to align one rotorblade on the longitudinal axis (in parallel to the tail boom) and measure the cyclic pitch with a digital pitch gauge on this rotorblade.

設定選單第 K 點是設定十字盤伺服器行程量，藉此 MICROBEAST 2 在控制昇降、推動伺服器時才有依據。設定伺服器行程量時，需將旋翼主旋翼保持水平(與尾管水平對齊)，並使用電子螺距規校正螺距。



[HET80001]
AP800 Digital Pitch Gauge
Ap800 數位螺距規



Menu LED K Solid
Status LED off
Menu-LED 點亮 K 點亮
Status-LED 熄滅



Tap rudder stick to switch
to measure position
輕推尾舵搖桿切換測量位置



Use aileron stick to adjust
blade pitch to exact exact
+6 or -6 degrees
使用副翼搖桿校正螺距，
直到螺距達到+6 或 -6度



Status LED should be solid blue
(see instruction manual for further
details on the LED colors)
Status-LED 燈亮恆亮藍色
(參考說明書的LED燈亮介紹)

SETUP MENU POINT L - COLLECTIVE PITCH

設定選單第 L 點-集體螺距

1. Set internal control direction

1. 設定內部控制方向



Move thrust stick to maximum **positive** pitch and let it stay there
移動油門搖桿到最大正螺距並停留。

Correct
正確



Status LED **blue**
Status-LED 燈藍色



Tap rudder stick once to swap colors
輕推尾舵搖桿一次切換顏色

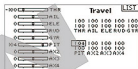
Wrong
錯誤



Status LED **red**
Status-LED 燈紅色

2. The Status LED must light solid blue, not just flash. If this is not the case, increase the servo throw/endpoint of the pitch channel in the transmitter just as far so that the Status LED changes from flashing to solid when the thrust stick reaches the end position. But do not increase the endpoint too much in the radio! We need an exact match of full stick position and stick end position, the Status LED should just change from flashing to solid when reaching the end position.

2. Status-LED 必須要恆亮藍燈，不可以閃爍。如果燈號顯示不正確，請在遙控器中增加螺距通道的伺服器行程量與端點(Endpoint)，直到油門搖桿打到端點(Endpoint)時，Status-LED 燈會由閃爍轉恆亮，但請勿將遙控器上的端點設過大！請注意，當油門搖桿打到端點時，Status-LED 會剛好從閃爍轉恆亮，此時的端點值最佳。



3. Now use aileron stick to adjust maximum **positive** collective pitch (i. e. +12°)

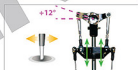
3. 移動副翼搖桿調整最大正集體螺距(例如 +12°)

4. Finally move thrust stick to full negative position and repeat steps 2. and 3. for the **negative** pitch. Here Status LED is red.

4. 最後，移動油門搖桿至最大負值位置，接著重覆第2和3的動作直到螺距為負。

Do not change control direction (with rudder stick) anymore!

請勿再透過尾舵搖桿變更控制方向。



SETUP MENU POINT M - SWASHPLATE SERVO LIMIT

設定選單第 M 點-十字盤伺服器極限

You can remove the pitch gauge now! Simultaneously move the sticks for thrust, aileron and elevator to the maximum deflection and check if the servos, swashplate or linkages get jammed in a certain position. By pushing and holding the rudder stick left or right you can increase or decrease the limit for the servos! Adjust the limit so that the servos just don't get jammed in any possible stick position but don't limit the servos more than necessary.

現在，您可以移除螺距規！同時，請移動油門、副翼和升降舵搖桿到最大偏轉的位置，接著檢查伺服器、十字盤或連桿是否會在某個位置受到干涉。透過移動尾舵搖桿向左或向右，您可以增加或減少伺服器行程量！此調整是為了提高搖桿在控制伺服器時的順暢度，但也沒必要超過極限。



Menu LED M solid
Menu-LED 燈第 M 點恆亮



Move thrust, aileron and elevator sticks carefully to maximum deflection!
小心地移動油門、副翼和升降舵搖桿到最大偏轉！



Use rudder stick to adjust the servo limit
移動尾舵搖桿調整伺服器極限



Status LED should be solid blue (see instruction manual for further details)
Status-LED 燈恆亮藍色
(參考說明書的 LED 燈簡介)

6 GOVERNOR SETUP MENU

定速模式設定選單

ALIGN

GOVERNOR MENU POINT A - TEST MODE (MENU LED A FLASHING SLOWLY) 定速模式設定選單第 A 點-測試模式 (Menu LED 燈第 A 點慢速閃爍)

If the Governor was activated at Setup menu point N (set to "electric" or "nitro/gas" heli) you will access the Governor menu immediately afterwards. At point A we check if the speed sensor is functioning properly and if the sensor wire is connected correctly.

如果在設定選單第 N 點開啟定速模式 (設定 "電動" 或 "引擎" 直昇機)，即可立即進入選單。在第 A 點，我們要檢查的是轉速感應器的功能是否正常，接線是否正確。

Electric Heli With Brushless Phase Sensor 電動直昇機配備無刷式感應器



Menu LED A flashes
Status LED off
Menu LED 燈第 A 點閃爍
Status-LED 燈熄滅



Rotate the motor by hand.
The Status LED must light red
用手轉動馬達 Status-LED 燈亮紅燈



Nitro/Gas heli 引擎直昇機



Turn clutch bell by hand
用手轉動離合器



when magnet triggers sensor
當磁鐵觸發感應器，
Status-LED 燈亮紅藍色。

When using a helicopter with combustion engine adjust the throttle servo positions in the transmitter (servo throw and servo center) and setup the throttle on the heli (throttle linkage rod length and servo arm position) if necessary. Attach the servo horn at thrust mid stick position. The throttle linkage must form a right angle with the servo horn.

Adjust the length of the linkage according to the instructions of the helicopter so that it also is positioned perpendicular to the linkage lever at the carburetor. The carburetor must be opened halfway (note the markings on the carburetor!). Then adjust the servo throw so the carburetor can be fully opened and fully closed without jamming the throttle servo.

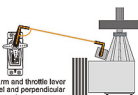
若您使用的是引擎直昇機，可在遙控器調整油門伺服器的位置 (伺服輸出和伺服中立點)，如果有必要，也可以調整直昇機的油門伺服器的連桿長度和伺服臂位置。伺服器臂要在油門中立點的位置，它和伺服器連桿必須成直角，請參考下圖。

請根據直昇機的結構來調整連桿球頭的長度，必須讓它的位置垂直於化油器的連桿控制臂。調整化油器控制臂時，請將化油器開啓至一半的位置 (請注意化油器的標記!)。然後調整伺服器輸出的最大及最小行程量，並注意其順暢度。

Thrust in mid stick position
油門搖桿在中立點位置



Servo arm and throttle lever in parallel and perpendicular to linkage rod.
伺服器臂及油門控制臂藉由連桿互相平行並垂直



GOVERNOR MENU POINT B - MOTOR OFF/IDLE POSITION

定速模式選單第 B 點-馬達開啓/關閉位置

Using an electric heli move the throttle to the position at which the motor is just before to start running, i.e. by adding throttle until the motor starts to turn and then reducing the throttle a little. With a nitro/gas heli move the throttle to a stable idle position.

使用電動直昇機請將油門移動到馬達開始轉動的位置，接著慢慢增加油門，直到馬達開始轉動，然後稍稍降低一點油門。當使用引擎直昇機時，請將馬達開啓/關閉位置移動到油門怠速位置。



Menu LED B flashes
Status LED off
Menu-LED 燈第 B 點閃爍
Status-LED 燈熄滅



Move throttle to position at which the motor is just before to start running (electric heli) or idle position (nitro/gas heli)
移動油門到馬達開始前的位置(電動直昇機)或油門怠速位置(引擎直昇機)



Press Button Briefly
短按按鈕
Status LED blue when
throttle position registered
當油門位置時，
Status-LED 燈亮藍色

GOVERNOR MENU POINT C - FULL THROTTLE POSITION

定速模式選單第 C 點-油門最大行程量

Move throttle to maximum position. **Note:** In electric governor mode the throttle input will not be passed to CH5 output to prevent from motor damage by running the motor without load! Thus, you have to check before that the full throttle position runs the motor at maximum speed in reality, i.e. by correctly programming your throttle end points in the transmitter or ESC.

將油門推到最大行程的位置。請注意：在電動直昇機變速器(ESC)的模式下，為了防止空載而損壞馬達，油門輸入將不會經由 [CH5] 傳輸出來！因此，您必須在馬達實際運轉前，檢查最大行程量，請直接操作遙控器或變速器油門的最大及最小行程量。



Menu LED C flashes
Status LED off
Menu-LED 燈第 C 點閃爍
Status-LED 燈熄滅



Move throttle to maximum position
移動油門到最大行程量



Press Button Briefly
短按按鈕
Status LED blue when
throttle position registered
當油門位置時，
Status-LED 燈亮藍色

GOVERNOR MENU POINT D - TRANSMITTER SETUP

定速模式選單第 D 點-遙控器設定

Here we can set the desired rotor headspeed and throttle curves. The Status LED can be used to verify the transmitter setup.

Governor off = off, Autorotation = purple, Gov active = red or blue (at max. RPM).

When using an electric heli the throttle is completely independent from the thrust stick. The throttle curves are set to horizontal lines which stand for a certain headspeed and governor operation mode. Using the flight mode switch you can switch between the different curves/rpm presets in the transmitter.

在這裡我們可以設置想要的旋翼頭轉速和油門曲線。Status-LED 燈，可以驗證遙控器的設定是否正確：

定速模式關閉=熄滅，自動=紫色，定速模式啟動=紅色/藍色(最大 RPM 值)

當使用電動直昇機時，油門是完全獨立於油門搖桿。油門曲線是根據旋翼頭轉速和定速模式來決定水平位置。請使用飛行模式開關，以便您在遙控器上切換不同曲線和轉速。

Motor off

- Throttle 0% over the entire range

馬達關閉

- 全部範圍的油門=0%



Status LED Off
Status-LED 燈熄滅

Idle Up

- Throttle set between 15% and 100% equals headspeed of 800-5000rpm
- +5% = +247rpm

Idle Up

- 油門設定在 15% 和 100% 之間等於 800-5000rpm
- +5% = +247rpm



Status LED Red or Blue
Status-LED 燈紅色或藍色

Autorotation

- Throttle greater 0% and smaller 15%
- Motor off
- When switching back to idle up motor will restart quickly

熄火 (降格)

- 當油門介於 0%-15% 之間
- 馬達關閉
- 當切換回 Idle Up，馬達會快速重新啟動



Status LED Purple
Status-LED 燈紫色

The Governor for **nitro/gas models** can be operated in two different ways: One possibility is to operate the governor using the **throttle channel similar to the electric mode**. Only difference here is that the the range below 50% throttle is used to manually control the throttle servo, i. e. for starting the motor. The range above 50% activates the governor and presets a specific rotor headspeed just like in electric mode.

引擎直昇機的旋轉速度定速模式有兩種不同的操作方式。其中一種是使用油門通道，這和電動模式的定速方法相同。唯一不同的是，它在油門 50% 以下的範圍內，能允許手動控制模式來操控油門伺服器。當馬達運轉高於 50% 時，將會啟動定速模式並有特定的旋翼頭速，就像電動模式一樣。

Manual control

- Range between 0% und 50% directly controls the throttle servo from idle to fully opened position

手動控制模式

- 從 0% 到全開位置，0% 至 50% 範圍內直接控制油門伺服器



Status LED Off
Status-LED 燈熄滅

Idle Up

- Throttle set between 50% and 100% equals headspeed of 500 - 3000rpm
- +5% = +250rpm

Idle Up

- 油門設定在 50% 與 100% 之間，等於頭速 500 - 3000rpm
- +5% = +250rpm



Status LED Red or Blue
Status-LED 燈紅色或藍色

Autorotation

- Throttle in idle position
- When switching back to idle up (>50%) motor will restart quickly
- Switching back to manual control (<40%) will disable governor

熄火 (降格)

- 油門在 Idle 位置
- 當切換回 Idle up (>50%)，馬達會快速重新啟動
- 切換回手動控制 (<40%)，會禁用定速模式



Status LED Purple
Status-LED 燈紫色

The second option to control the Governor for **nitro/gas helicopters** is to use a **separate switch channel**. Here the throttle curves/throttle channel is used for manual throttle servo control only. The Governor is activated and the headspeed is set by using the additional channel. When the throttle channel is above 25% and a headspeed is set, the Governor will activate and control the headspeed. Moving the throttle channel below 25% will switch to Autorotation mode.

第二個方法是將定速模式分配在一個獨立的控制通道。這樣油門曲線可完全手動控制油門伺服器。開啟定速模式，利用獨立的通道預設旋翼頭速。當油門高於 25% 且已預設頭速時，定速模式會介入控制頭速。移動油門低於 25%，系統會轉入熄火降格模式。

Manual Control

- Throttle curve controls servo
- Governor off
- Governor channel below 5% (-90)

手動控制模式

- 油門曲線控制伺服器
- 定速模式關閉
- 定速模式通道低於 5% (-90)

Idle Up

- Governor channel set between 5% and 100% (or -90 and +100 on some transmitters) equals headspeed of 500-3000rpm
- +5% (or 10 clicks) = +131rpm
- throttle channel must stay above 25%

Idle Up

- 定速模式通道設定在 5% 至 100% 之間(或一些遙控器是 -90 至 +100)等於頭速 500-3000rpm
- +5% (or 10 clicks) = +131rpm
- 油門曲線需高於 25%

Throttle Curve
(Throttle Channel)
油門曲線
(油門通道)



Status-LED off
Status-LED 燈熄滅

Governor Control
Channel
定速模式
控制通道



Throttle Curve
(Throttle Channel)
油門曲線
(油門通道)



Status LED Red or Blue
Status-LED 燈紅色或藍色

Governor Control
Channel
定速模式
控制通道



Which nitro governor mode you're using depends on whether you've assigned a switch channel to control the governor at the RECEIVER MENU function assignment or not. You can find out which mode you're using by watching the Status LED display here while moving the throttle!

您所使用的引擎直昇機定速模式取決於您在接收器選單中分配的控制通道，透過移動油門搖桿，Status-LED 燈號會顯示目前所使用的定速模式。

For proper governing the headspeed should not be set higher than 80% of the maximum possible headspeed of the helicopter. When using the nitro governor, make sure that slow rampup speed and fast rampup speed are not set too high in PARAMETER MENU. Otherwise the throttle may be opened too quick and may lock in at full throttle position.

建議適當的定速模式，直昇機頭轉速最高不可高於 80%。當使用引擎直昇機定速模式，請確保在參數選單中緩升速度與緩降速度不可設過高。否則油門啟動會過快且在全速時會被鎖定。

GOVERNOR MENU POINT E - SIGNAL DIVIDER

定速模式選單第 E 點-轉速訊號分配表

Electric helicopter with brushless phase sensor or phase signal from ESC: signal divider = motor pole count : 2

Nitro/Gas helicopter with magnetical or optical sensor: signal divider = number of triggers (i.e. magnets or optical markers)

電動直昇機搭配無刷相位感應器或 ESC 相位訊號：轉速訊號分配表=馬達極速：2

引擎直昇機磁或光感應器：訊號分配表=觸發(如磁鐵或光學標記)的數量

Status-LED Status-LED燈	Off 熄滅	Flashing Purple 紫燈閃爍	Purple 紫燈	Flashing Red 紅燈閃爍	Red 紅燈	Flashing Blue 藍燈閃爍	Blue 藍燈
E Signal Divider 訊號分配表	1	2	3	4*	5	6	7

GOVERNOR MENU POINTS F G H - MAIN GEAR RATIO

定速模式選單第 F / G / H 點之主齒輪比

When the helicopter has a single stage main gear: Main gear ratio = Main gear tooth count : Motor pinion tooth count

Set the Status LED color/state at each of the menu points F, G and H so that the main gear ratio can be calculated as sum of the three menu points, i. e. 8.55:1 = F flashing purple + G flashing red + H red

若使用單一主齒輪的直昇機時，主齒輪比=主齒輪齒數：馬達齒輪齒數

在設定選單中第 F/G/H 點的狀態指示燈遠代表齒輪比，例如 8.55 : 1 = 選單第 F 點紫燈閃爍 + 選單第 G 點紅燈閃爍 + 選單第 H 點紅燈。

Status-LED Status-LED燈	Off 熄滅	Flashing Purple 紫燈閃爍	Purple 紫燈	Flashing Red 紅燈閃爍	Red 紅燈	Flashing Blue 藍燈閃爍	Blue 藍燈	Red / Blue 紅色藍色
F	Custom 自訂	8.00	9.00*	10.00	11.00	12.00	13.00	14.00
G	——	+0.00	+0.20	+0.40*	+0.60	+0.80	——	——
H	——	+0.00	+0.05	+0.10*	+0.15	——	——	——

The **tail gyro gain** is adjusted by one of the transmitter's auxiliary channels. The more servo throw this channel produces, the higher the tail gyro gain will be. The direction of servo throw determines whether the gyro works in Normal-Rate mode or in Heading Lock mode. The color of the Status-LED indicates the selected mode when MICROBEAST² is operation. Purple means Normal-Rate and blue indicates Heading Lock mode. When changing the gain and after initialization sequence the amount of gain is displayed by one of the menu LEDs for 4 seconds.

您可以利用遙控器的輔助通道來調整尾陀螺儀感度。在這個通道發射越多伺服訊號，就會有越高的尾陀螺儀感度。伺服訊號輸出的方向決定陀螺儀的工作模式，分別為「鎖定模式」或「非鎖定模式」。Status-LED 燈的顏色表示在目前的工作模式下，MICROBEAST² 已準備就緒。紫燈表示「非鎖定模式」，藍燈表示「鎖定模式」。調整好感度的初始化後，請輕推一下搖桿，當前感度值會在一個設定選單的 LED 燈顯示約 4 秒。



For the first flight we suggest to use HeadingLock mode (Status LED blue) and start with medium gain (not higher than LED G). In case the tail of the helicopter starts to oscillate with high frequency in flight, immediately reduce the gain! If on the other hand the rudder control feels imprecise and the gyro doesn't hold position very well, increase the gain. Most radio systems provide an automatic switching for the tail gyro gain depending on flight modes. In the flight mode with the lowest rotor headspeed you can use the most gain. Reduce the gain the higher the headspeed is. **Before the first flight make sure the tail gain is set correctly and is also set when switching flight modes.** Use the LED display to see how the gyro is setup and do not rely upon the values of your transmitter as signs and percentages may vary depending on radio brand and radio type!

Before the first take off make a stick direction check and check if swash and tail gyro are correcting to the right direction when you tilt, roll or yaw the helicopter by hand. Just before lift-off make sure that the swashplate is horizontal and that the tail pitch slider is close to center position. Avoid excessive steering during lift-off otherwise the helicopter may tip over! The best way is to give a fair and direct collective pitch input to lift the helicopter quickly up into the air.

Adjusting the **three dials** on top of MICROBEAST² you can optimize the control loop and customize it to your helicopter. For the first flight all three dials should be centered. If necessary only adjust one dial at a time and only in little steps. Turning a dial clockwise will increase the effect, turning it counter-clockwise will decrease the effect of the parameter.

在鎖定模式下 (Status-LED 燈亮藍色) 的首次飛行時，我們建議您將感度設在 50% (以不超過 LED 燈 G 以上，請參看上圖)。假使在飛行時尾部有劇烈震動，請立即降低感度，如果尾部控制不精準或陀螺儀鎖尾效果不佳，請增加感度。大多數品牌的遙控器在某種飛行模式下，可自動切換尾陀螺儀感度。在飛行模式下使用最低的頭轉速設定，建議您用最高感度，相反地，使用較高頭轉速，可降低感度。首次飛行前，請務必檢查尾陀螺儀感度，以及飛行模式的切換是否正確。請透過 Status-LED 燈號顯示檢查陀螺儀的設定，切勿依賴遙控器上顯示的設定值與比例，因為不同品牌的遙控器其設定值與比例可能會有差異。

在首次飛行前，最好再做一次搖桿檢查，例如用手撥動搖桿，看十字盤運動方向是否正確，左右或前後傾斜歪斜，看陀螺儀是否會做出正確的方向補償。請記住，在升空前十字盤是呈水平的位置，尾陀螺儀接近中立點。請注意，起飛時請不要轉向過度，否則直昇機可能會傾倒，最好的方式是先打一個少量且直接的循環桿距，讓直昇機可以快速的升空。

調整 MICROBEAST² 面板上的三個旋鈕，可以優化您直昇機的飛行效果。首次飛行時，面板上的三個旋鈕的感度應在水平位置。如有必要，請一次只調整一個旋鈕。若順時針方向轉動旋鈕，感度會增加。反之，逆時針方向旋轉旋鈕，感度會降低。

1 - Cyclic gain

The higher the gain the harder the helicopter will stop after cyclic moves and the more stable and precise the helicopter will fly. If the gain is too high the helicopter will tend to shake (especially on the elevator axis) as the system overcompensates. With low gain the helicopter does not stop precisely and overshoots after a cyclic movement. Additionally it is unstable and control feels sluggish. Due to their low mass small helicopters typically do not need as much gain as large helicopters.

1-循環螺距感度

感度越高，在循環螺距變化後，直昇機的利率就會比較緊，這樣會使得停滯較穩定。但是，如果感度太高，直昇機在上下飛行時會有回彈追尾的現象產生，並容易抖動。由於這些現象大多發生在較小型的直昇機上（450級盒以下），所以，小型直昇機的主旋翼感度一般來說要比大型直昇機來得低。但如果感度太低，直昇機的煞車動作將不準確，執行循環動作（滾轉及俯仰）後會失準，此外，直線快速飛行和停滯時也會感覺延鈍不穩定。



2 - Cyclic feed forward

Feed forward connects the servo movements with your stick inputs, bypassing the control loop. This will give a more natural control feel and quicker reactions to stick inputs. But if the cyclic feed forward is too high, stick control will fight against the control loop. The heli will bounce back when stopping from a cyclic movement and it will react over sensitive and pitch up easily in fast forward flight.

2-十字盤直接輸出量

如果十字盤直接輸出量過高，當在打舵時，過大的十字盤反應，會使得直昇機有停頓回彈的現象產生，也會覺得直昇機的反应過度敏感。同時，當增加感度時，直昇機會快速向前飛。反之，如果十字盤直接輸出量過低，會出現延遲現象和感覺非常機械化和不自然。

3 - Tail gyro response

Increasing the tail gyro response will cause harder stopping and more aggressive response to rudder stick inputs. If response is set too high, the tail will bounce back when doing a hard stop (especially when turning against rotor torque). If the dynamic is set too low, the rudder control feels dull and stopping is very soft. Ideally the tail should stop perfectly to the point without making any flapping noises.

3-尾舵動態反應

增加「尾舵動態反應」的感度，會影響到直昇機在自旋利率時的動作及敏感度。如果感度設定太高，直昇機在自旋利率時，會感到直昇機有過度靈敏的反應及追尾現象，在快速變化方向時又會感覺鬆軟無力。如果感度設定太低，在打舵時，會感到遲鈍和軟力。理想情況是直昇機在自旋利率時，尾部要完美停止，沒有任何拖泥帶水的干擾。

8 PARAMETER MENU

參數選單

ALIGN

The Parameter menu allows you to further customize the flight characteristics of the helicopter and the reaction of the system to control inputs. You can find a detailed description for each parameter in the MICROBEAST 2 instruction manual.

參數選單，方便您調整直昇機的飛行特性及控制反應。您可以在 MICROBEAST 說明書中找到每個參數的詳細說明。

Entering Parameter Menu 進入參數選單

Press and Hold Button
長按按鈕

Release Button
放開按鈕



Operation Mode
(Status LED is Blue or Purple)
操作模式 (Status LED 閃藍色或紫色)



Menu LED A Flashing
Menu LED 燈第 A 點閃爍



Menu LED A Flashing
(= Parameter menu point A)
Menu LED 燈第 A 點閃爍 (= 參數第 A 點)

MENU POINT A - SWASHPLATE QUICK TRIM (MENU LED A FLASHING) MENU LED 燈第 A 點 - 十字盤快速微調 (= 選單第 A 點閃爍)

Move the stick(s) for aileron and elevator to trim the swashplate into the desired direction. With rudder you can trim the collective up/down. When using the tail gyro in Normal-Rate mode you can trim the rudder servo with the rudder stick. To delete all trimming push and hold the button for at least 10 seconds.

移動副翼和升降桿來微調十字盤到所需的方向。移動舵舵桿可以校正上下集體螺絲。當在非鎖定模式下使用尾舵螺絲，移動尾舵桿可校正尾舵。只要按住按鈕約 10 秒鐘，即可將先前的微調記錄刪除。

MENU POINTS B TO K 選單第 B-K 點

Color and state of the Status LED indicate which option is currently selected at each menu point. By pushing the rudder stick repeatedly you can cycle through the available options at each menu point and change the setting if necessary. Briefly pushing the button will skip to the next menu point. After the last menu point the system will exit Parameter menu and change back to operation mode.

Status-LED 燈的顏色顯示您在每個選單中的當前選項。利用反覆推一個方向推動尾舵桿，直到 Status-LED 燈出現需要的顏色為止。短按按鈕就會跳到下一個選單點。到達最後一個選單點後，系統將退出參數選單，回到操作模式。

Status-LED Status-LED 燈	Off 熄滅	Purple 紫色	Flashing Red 紅燈閃爍	Red 紅色	Flashing Blue 藍燈閃爍	Blue 藍色
B Control Style B 控制風格	Custom 自訂	Normal 普通	Sport* 運動*	Pro 極和	Extreme 極限	Tx Mode 遙控器
C Speed Flight Stability C 高速飛行穩定性	Custom 自訂	very low 極低	Low 低	Medium* 普通*	High 高	Very High 極高
D Rudder Rate Consistency D 舵率一致性	Custom 自訂	very low 極低	Low 低	Medium* 普通*	High 高	Very High 極高
E Stick Deadzone E 搖桿死區	Custom 自訂	very small 極小	Small* 小*	Medium 普通	Large 大	very large 極大
F Torque Precompensation F 扭力預補償	Custom 自訂	Off 關閉	low - nor. 低 - 正	High - Nor. 高 - 正	Low - Inv. 低 - 反	High - Inv. 高 - 反
G Cyclic Response G 前環反應	Custom 自訂	Normal* 普通*	Slightly Increased 增加一點	Increased 增加	Aggressive 激進	Very Aggressive 極激進
H Pitch Boost H 俯仰增強	Custom 自訂	Off* 關閉*	Low 低	Medium 普通	High 高	Very High 極高
I Throttle Response I 油門反應	Soft 緩和	Normal* 普通*	Slightly Increased 增加一點	Increased 增加	Aggressive 激進	Very Aggressive 極激進
J Slow Rampup Speed J 緩速啟動速率	Custom 自訂	50 rps	100 rps	200 rps*	300 rps	400 rps
K Fast Rampup Speed K 快速啟動速率	Custom 自訂	Using Slow Rampup Speed 採用緩速啟動速率	300 rps	500 rps*	700 rps	900 rps

9 MENU OVERVIEW

選單總覽

ALIGN

Setup Menu(Menu LED Solid)

設定選單(Menu-LED 燈亮)

* Factory Setting * 出廠預設值

		Off 關閉	Flashing Purple 紅藍閃爍	Purple 紫色	Flashing Red 紅紅閃爍	Red 紅色	Flashing Blue 藍藍閃爍	Blue 藍色	Red/Blue 紅藍色
A	Device Orientation 陀螺儀方向	R	horizontal 水平放在前面	vertical 垂直放在前面	hor. inv. 水平, 正面放在後面	hor. inv. 水平, 正面放在後面	vertical 垂直放在後面	hor. inv. 水平, 正面放在後面	hor. inv. 水平, 正面放在後面
B	Swashplate frequency 十字盤頻率	R	Custom 自訂	50 Hz*	65 Hz	120 Hz	165 Hz	200 Hz	
C	Rudder pulse width 舵機中心脈寬	R	Custom 自訂	760 μ s		960 μ s		1520 μ s*	
D	Rudder frequency 舵機頻率	R	Custom 自訂	50 Hz*	165 Hz	270 Hz	333 Hz	(560 Hz)	
E	Rudder limits 舵機極限	R	Use rudder to move servo to one endpoint and wait until LED flashes, then move to the other endpoint and wait. 利用舵機將舵機移動到某一端點, 等LED閃爍時, 再移動到另一端點, 再等待。						
F	Rudder direction 舵機旋轉方向	A				Left 左		Right 右	
G	Swash mixing 十字盤混控類型	R	Custom 自訂	no mixing 不混控	90° (34 servo)	120° *	140° *	150° (44° (4))	
H	Servo directions 十字盤伺服機方向	RA		Servo Ch1 伺服機CH1	Servo Ch2 伺服機CH2	Servo Ch3 伺服機CH3	(Servo Ch7) 伺服機CH7		
I	Cyclic control directions 十字盤控制方向	R			Left/back 左後	Right/forward 右前			
J	Servo trim/Swashplate trim 十字盤伺服機調節	RA	No trim* 不須調節	Servo Ch1 伺服機CH1	Servo Ch2 伺服機CH2	Servo Ch3 伺服機CH3	(Servo Ch7) 伺服機CH7		
K	Cyclic throw (set to 6 degrees) 十字盤伺服機行程量(調節6度)	RA		not good 差	OK 可	Perfect 好			
L	Collective pitch 集體螺距	R			check throw! 檢查行程量!	Negative 負	check throw! 檢查行程量!	Positive 正	
M	Servo limit 十字盤伺服機極限	R			Left/back 左後	Right/forward 右前			
N	Headspeed Governor 頭轉速度限制模式	R	Governor Off* 定速模式關閉			Electric Helix 電動齒輪機	Nitro/Gas Helix 引擎齒輪機		

Governor Setup Menu(Menu LED Flashing Slowly)

定速模式選單(Menu-LED 燈緩慢閃爍)

* Factory Setting * 出廠預設值

		Off 關閉	Flashing Purple 紅藍閃爍	Purple 紫色	Flashing Red 紅紅閃爍	Red 紅色	Flashing Blue 藍藍閃爍	Blue 藍色	Red/Blue 紅藍色
A	Test Mode 測試模式		"Nitro/Gas Helix": Status-led Blue When Magnet Passes Sensor "Electric Helix": Status-led Red When Motor is Running "引擎齒輪機"模式: 當磁鐵經過感應器 Status-LED 燈光閃爍 "電動齒輪機"模式: 當引擎啟動時 Status-LED 燈光閃爍						
B	Motor Off/Idle Position 馬達關閉/Idle位置	T	"Nitro/Gas Helix": Throttle Servo To (increased) Idle Position "Electric Helix": Throttle In "motor Off" Position, Just Before Motor Starts (▲ throttle unlocked!) "引擎齒輪機"模式: 怠門/Idle位置 "電動齒輪機"模式: 怠門在 "馬達關閉"位置, 離啟動齒輪機 (▲ 怠門解鎖!)						
C	Full Throttle Position 最大油门位置	T	Set full throttle position (Electric helix: motor speed does not change anymore - nitro/gas helix: servo at maximum) 設定全油门位置 (電動齒輪機: 馬達轉速不再變化; 引擎齒輪機: 伺服機在最大值)						
D	Transmitter Setup 遙控器設定		Governor off 定速模式關閉	Automation 自動		Governor on 定速模式啟動		Governor on max. RPM 定速模式設定在最大轉速	
E	Signal Divider 轉速訊號分配表	R	1	2	3	4*	5	6	7
F	Main Gear Ratio(sum of F + G + H if Not * custom)	R	Custom 自訂	8	9*	10	11	12	13
G	主馬達-齒輪比 (F + G + H總和, 如果不是用為"自訂")			+0.00	+0.20	+0.40*	+0.60	+0.80	
H				+0.00	+0.05	+0.10*	+0.15		

Enter SETUP MENU by pressing button for at least 2 seconds in operation mode. Skip to next Menu Point by pressing button briefly, after last point menu will exit.

R Use rudder to adjust value/choose setting. A Use aligner to switch menu option. T Set throttle to desired position if you like to change the setting.

* Default setting: hold button for 10 seconds at any Menu Point (except J) to reset setting and parameter data. Holding button at J only the trims will be reset!

長按按鈕2秒進入設定選單, 輕按按鈕一次切換至下一級選單, 最後一級選單之後會跳出設定選單。

R 移動舵機將舵機設定/校正調整。A 移動對準器將切換設定選單選項。T 移動油门桿將希望的位置設定。

* 預設值: 除了J, 長按按鈕10秒可重置出廠預設值。在J選單, 長按10秒, 僅調整齒輪齒量。

Paramete Menu(Menu-LED is Flashing Quickly)

參數功能表(Menu-LED 快速閃爍)

* Factory Setting * 出廠預設值

		Off 關閉	Purple 紫色	Red 紅色	Flash Blue 藍色閃爍	Blue 藍色
A	Quick Trim 快速調節	Gyro in HL mode: Trim aileron and elevator with stick, use rudder to trim collective. Gyro in Rate Mode: Rudder stick trims rudder. Altitude Control active: Adjust roll and pitch angle of horizon with aileron and elevator stick. Any mode: Reset all servo trims by holding button for 10 seconds. 在標準模式下：移動副翼桿調節滾轉和俯仰，移動舵桿調節偏航。 在速率模式下：移動舵桿調節偏航和俯仰，移動副翼桿調節滾轉。 在高度控制模式下：移動副翼和升降舵桿調節。調節偏航(Roll)和俯仰(Pitch)的水平角度。 任何模式：長按按鈕10秒，所有伺服調節值返回出廠預設值。				
B	Control Style 控制風格	Custom 自訂	Normal 普通	Sport* 運動*	Pro 專業	Extreme 極限
C	Speed Flight Stability 高速飛行穩定性	Custom 自訂	Very Low 極低	Low 低	Medium* 普通*	High 高
D	Rudder Rate Consistency 舵率一致程度	Custom 自訂	Very Low 極低	Low 低	Medium* 普通*	High 高
E	Stick Deadzone 搖桿死區	Custom 自訂	Very Small 極小	Small* 小*	Medium 普通	Large 大
F	Torque Precompensation 扭力預償	Custom 自訂	Off* 關閉*	Low - Inv. 低-反	High - Inv. 高-反	Low - nor. 低-正
G	Cyclic Response 循環反應	Custom 自訂	Normal* 普通*	Slightly increased 增加一點	Increased 增加	Aggressive 激進
H	Pitch Boost 俯仰增強	Custom 自訂	Off* 關閉*	Low 低	Medium 普通	High 高
I	Throttle Response 油门反應	Soft 緩滑	Normal* 普通*	Slightly increased 增加一點	Increased 增加	Aggressive 激進
J	Slow Rampup Speed 緩速啟動速率	Custom 自訂	50 rps 100 rps	100 rps 200 rps*	200 rps 300 rps	300 rps 400 rps
K	Quick change rate 快速變換速率	Custom 自訂	= slow spool up 緩速啟動速率	300 rps 500 rps*	500 rps 700 rps	700 rps 900 rps
L	AltitudeControl Mode 高度模式	Disabled* 失效	Angular mode 角度模式	Ball Out Rescue 救護	Ball out - Pitch 救護-俯仰	3D Mode 3D模式
M	AltitudeControl Pitch (容差模式調節)	> 0%	> 30%	> 50%	> 70%	> 70%

Enter PARAMETER MENU by pressing button briefly in operation mode. Use rudder to adjust value/choose setting (except at A).

Skip to next Menu Point by pressing button briefly, after last point menu will exit.

* Default setting - hold button for 10 seconds when in SETUP MENU (I) to set everything to default (except receiver settings)

短按按鈕10秒重置。(除了第A點外)可移動舵桿或搖桿調整設定數值/選擇設定值。

短按按鈕可切換至下一點菜單。最後一點菜單之後，則將退出菜單。

* 預設值：在設定菜單中，長按按鈕10秒，所有設定值可恢復出廠預設值(除了接收器設定外)。

RECEIVER SETUP MENU(Menu-LED is flashing)

接收器設定菜單(Menu-LED 燈閃爍)

* Factory Setting * 出廠預設值

		Off 關閉	Purple 紫色	Red 紅色	Blue 藍色
A	Receiver Type 接收器類型	Standard RX 傳統型	Remote Satellite 衛星天線	None 無	Serial Signal on D11 序列訊號輸入
B	Pitch channel 俯仰通道	Move the stick/channel on transmitter you want to assign. The Status-LED will flash in blue color when channel was detected. When Status-LED flashes red, two or more channels have been moved!			
C	Aileron channel 副翼				
D	Elevator channel 升降舵				
E	Rudder channel 舵				
F	Gyro channel 陀螺				
G	Throttle channel 油门				
H	Aux channel (Ch6) 輔助通道 (Ch6)				
I	Governor channel 定速模式				
J	AltitudeControl channel 高度模式				
N	Throttle failsafe 失速保護位置	Move throttle to failsafe position (throttle unlocked!) and push button to save and exit. 將油门桿移至失速保護位置(油门解鎖)，然後按下按鈕保存並退出。			

Enter RECEIVER MENU by pressing and holding button before (I) and while power up. Skip to next Menu Point by pressing button briefly (at Menu Point A short button press will initiate automatic receiver detection). When Standard RX is used menu will exit after detection!

短按按鈕前，即可進入接收器菜單，短按按鈕可切換至下一點菜單。(在菜單第A點，短按按鈕會自動開始初始化接收器偵測接收器類型)，如您使用傳統型接收器，在自動偵測後，將會自動跳至下一點菜單。

Please note: AltitudeControl options are only accessible when PROEDITION firmware upgrade is installed.

請注意：僅有系統升級至PRO版本才有高度模式功能。

ALIGN