

HelibEST MC6500PRO V2 User Manual

Small Multi-purpose 2 Axis aerial video Camera Gimbal

小型多用途兩軸航拍雲臺組裝說明書

MC6500PRO V2 新特性:

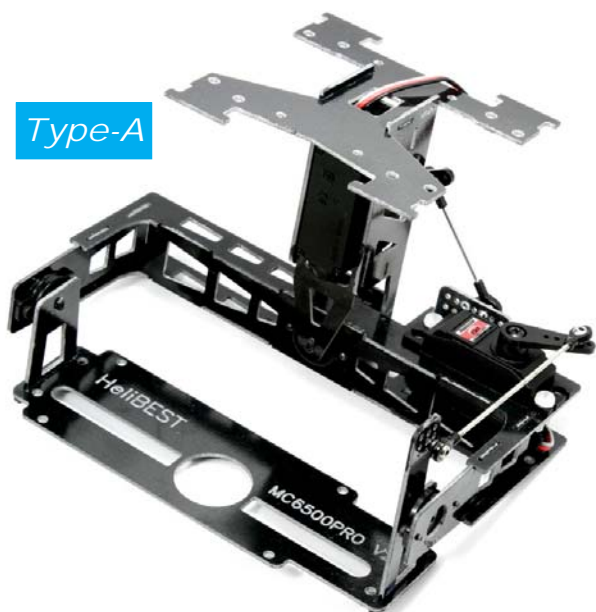
- 加強機架結構，有效承載能力提升至 500g。
- 完美支持倒裝方式，支持 GOPRO HD 鏡頭垂直安裝。
- 更寬的攝影機固定平臺，可安裝 SONY NEX5。
- 更輕的重量，僅重 114.5g，較上一代產品減輕了 3.5g。
- 舵機螺絲更容易安裝。
- 優化了雲臺的重心。

MC6500PRO V2 new features:

- Strengthen the frame structure, the effective load increases to 500g.
- Perfect support for an invert mode and GOPRO HD upright installation.
- Wider camera mount, the SONY NEX5 can be installed.
- Lighter weight, weighs only 114.5g, compared with the previous generation, reduces 3.5g.
- Servo screws can easily be installed.
- Optimize the center of gravity of the camera gimbal.

現在，MC6500PRO V2可帶給您兩種安裝形式——吊裝方式、倒裝方式

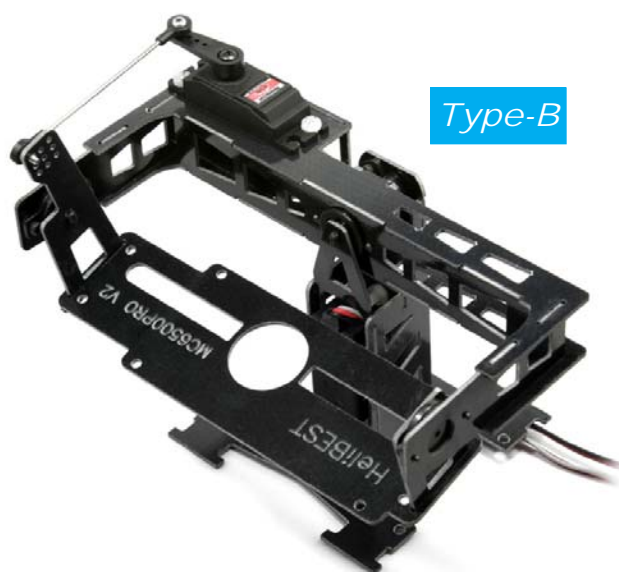
Now, MC6500PRO V2 can bring you two installation forms - Suspension mode, Invert mode.



Type-A

吊裝方式：適合絕大多數帶有加高腳架的小型航模飛行器，如 X650V4/V8 等。

Suspension mode: For the vast majority of small-scale model aircrafts with heightened landing gear, such as X650V4, X650V8, etc.



Type-B

倒裝方式：適合絕大多數不帶加高腳架的小型航模飛行器，如 X450Pro、F450 等。

Invert mode: For the vast majority of small-scale model aircraft aircraft without heightened landing gear, such as X450Pro, F450, etc.

請您在組裝前決定好要採用哪一種安裝形式，因為兩種安裝形式的組裝過程略有不同，然而在組裝好后您仍然可以隨時更改，十分簡便。

Before assembly, please choose the installation form you prefer, because the assembly process of the two kinds of installation forms are slightly different. However, after assembled, you can still change it at any time.

為了使本產品發揮最佳性能，請您務必在組裝前通讀說明書，並按照說明書步驟完成組裝。您需要使用的額外工具包括：1.5mm 和 2.0mm 內六角螺絲刀、小型十字或一字螺絲刀、小夾鉗；您還需要自備高品質瞬間膠水（502 或 495）。

注意：本產品組件大部分需用瞬間膠水粘接，操作膠水時應特別留意以下事項：1. 適量用膠；2. 注意防護（勿使膠水入口眼，勿使膠水粘住手指）；3. 還未干透的余膠可用吸水紙立即去除，以保持美觀度；4. 從待粘接零件的背部塗膠更利於美觀。

使用高品質瞬間膠，可快速粘接，結構強度完全可滿足應用要求，不必擔心是否牢固的問題，敬請放心使用！

To obtain the best performance of this product, please read through the manual carefully and assemble the parts according to the detailed instructions.

Additional tools you need to use are as follows: 1.5mm and 2.0mm hex screwdriver, small slotted screwdriver or small phillips screwdriver, small clamp; high quality instant adhesive.

Note: Most parts of this camera mount need to be adhered by instant adhesive, so please pay attention to the following points when you use it:

1. Proper amount of instant adhesive (Neither too much nor too little);
2. Protect yourself (Do not drill the adhesive into your mouth or eyes);
3. Absorb the extra undried adhesive by absorbent paper to keep the appearance clean;
4. Apply the adhesive on the back of the parts, which could keep the appearance neat;

The parts can be adhered quickly when using the high quality instant adhesive. And the structural strength could meet the requirements in use. Please rest assured to use.

MC6500PRO V2 的主要特點

The key features of MC6500PRO V2

- 兼容任何飛控及增穩控制器 (DJI WKM, FC1212-S, FY20A/30A, MK 2.0)
- 適用於 X650V4/V8, X450/X450PRO, SIGMA Y6, F450 等機型
- 支持兩種安裝形式——吊裝、倒裝
- 支持兩種連接方式 (硬連接和軟連接, 附送高頻減震管和 O 形圈)
- 採用超精密專用舵機 +4 個特制滾動阻尼器, 帶來無與倫比的運轉順滑度和細膩度

- Compatible with any controller ,such as DJI WKM,FC1212-S/P, FY20A/30A,MK 2.0,etc.
- For X650V4/V8, X450/X450PRO, SIGMA Y6, F450 and other models
- two installation forms - Suspension mode, Invert mode.
- Mention two connections (hard-wired and soft connection)
- The use of special ultra-precision servo + 4 special rolling damper, the operation of unparalleled smoothness and sophistication.

Type-A

DCS2600Digi
雲臺專用數碼舵機
DCS2600Digi
Digital Servo

阻尼器
Dampers

阻尼器
Dampers

DCS2600Digi
雲臺專用數碼舵機
DCS2600Digi
Digital Servo

阻尼器
Dampers

攝影機固定平臺
Camera Mount

61mm

109mm

40mm

118.9mm

重量(不含舵機)/Weight(Without Servo): 64.5g
重量(含舵機)/Weight(With Servo): 115g
內框有效寬度(Effective width): 118.9mm
內框總深度(Total depth): 61mm
內框有效深度(Effective depth): 50mm

外形尺寸(Dimension): 143.5mm(寬/Width) x 100mm(深/Depth) x 109mm(高/Height)
滾轉角度(Angle of Roll): >40°
俯仰角度(Angle of Tilt): >80°
最大荷載(Max. Load): 500g

Type-B

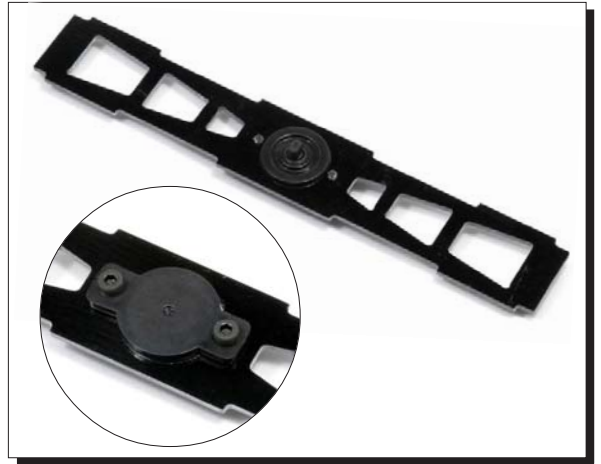
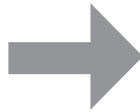
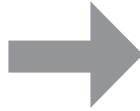
重量(不含舵機)/Weight(Without Servo): 64.5g
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內框有效寬度(Effective width): 118.9mm
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內框有效深度(Effective depth): 50mm

外形尺寸(Dimension): 143.5mm(寬/Width) x 108mm(深/Depth) x 107mm(高/Height)
滾轉角度(Angle of Roll): >40°
俯仰角度(Angle of Tilt): >80°
最大荷載(Max. Load): 500g

34mm

87mm

使用 M2.0 內六角螺絲把組尼器安裝到相應的結構件上。
Use M2.0 screws to install the dampers to relevant parts.



1. 注意控制螺絲鎖緊的力道，過緊易破損
2. 注意組尼器的安裝方向（請參考上述照片）
3. 不可以用較大的力扭動或壓迫組尼器的輸出軸，否則會造成損壞
4. 不可將膠水滴入組尼器的輸出軸內，否則會造成損壞

1. Use moderate force, too tight may break the parts;
2. Pay attention to the installation direction of the damper as seen above;
3. Do not apply too much force when rotate or press the damper output shaft rough, it may break the parts
4. Do not drip the adhesive into the damper output shaft, it may break the parts

STEP 2

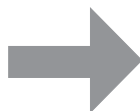
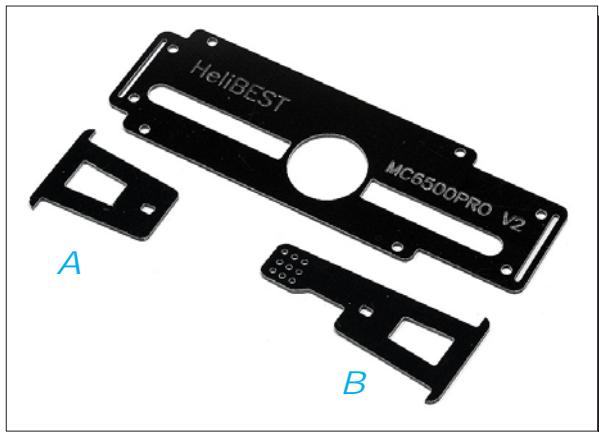
安裝攝影機固定平臺 / Install the Camera Mount

如果選擇吊裝方式，建議把 A 裝在左側，把 B 裝在右側。

If you choose TYPE-A, it is recommended that A is installed on the left side and B installed on the right.

如果選擇倒裝方式，建議把 A 裝在右側，把 B 裝在左側。

If you choose TYPE-B, it is recommended that A is installed on the right side and B installed on the left.



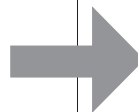
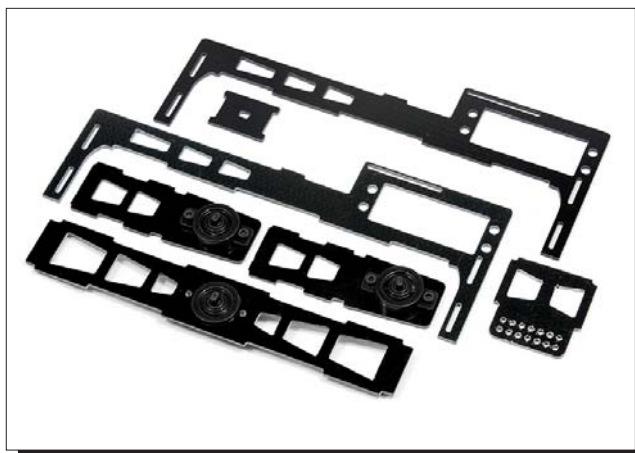
注意零件的安裝方向

Pay attention to the installation direction of the parts

STEP 3

安裝滾轉控制臂和攝影機固定平臺

Install the rolling control arms and camera mount



1. 注意零件的安裝方向

2. 把膠塗在接縫背面更利于外形美觀

3. 不要讓膠流到手指上了，以免在產品上留下指紋

4. 需等膠干透后才可放手，以免零件翹起，造成粘接不良

1. Pay attention to the installation direction of the parts;

2. Apply the adhesive on the back of the joints could keep the appearance;

3. Do not apply the adhesive on the fingers, to avoid leaving the finger prints on the parts

4. Do not loose your hand until the adhesive dry, to make sure that all the parts are adhered perfectly

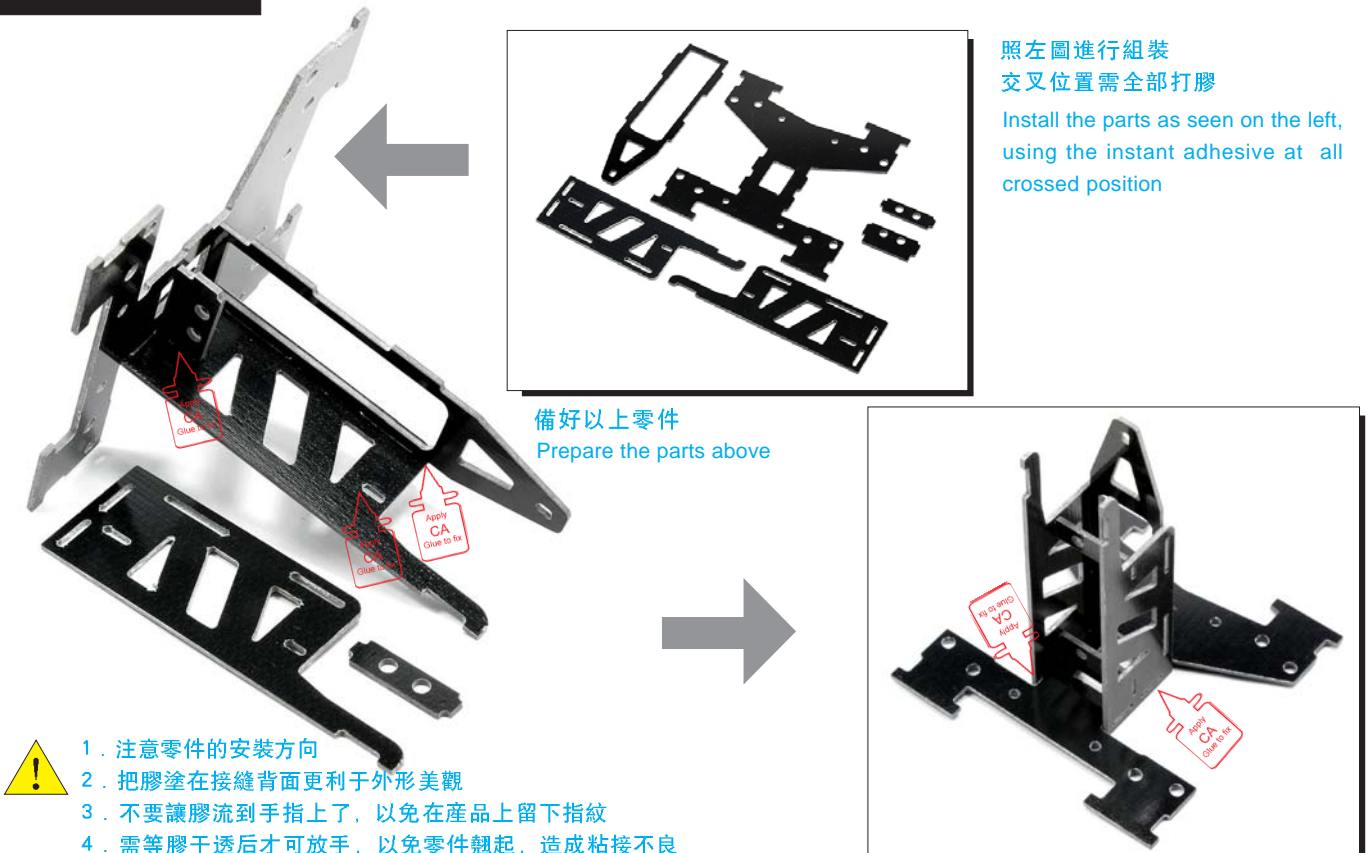
你也可忽略此步驟，在
第 7 步時執行此操作



You can ignore
this step and to do
this in STEP 7

STEP 4

安裝滾轉驅動臂 | Install the rolling actuating arm



照左圖進行組裝
交叉位置需全部打膠
Install the parts as seen on the left,
using the instant adhesive at all
crossed position

備好以上零件
Prepare the parts above

成品組裝完成
Assembled

!

1. 注意零件的安裝方向
2. 把膠塗在接縫背面更利于外形美觀
3. 不要讓膠流到手指上了，以免在產品上留下指紋
4. 需等膠干透后才可放手，以免零件翹起，造成粘接不良

1. Pay attention to the installation direction of the parts;
2. Apply the adhesive on the back of the joints could keep the appearance;
3. Do not apply the adhesive onto the fingers, to avoid leaving the finger prints on the parts
4. Do not loose your hand until the adhesive dry, to make sure that all the parts are adhered perfectly

STEP 5

安裝舵機 | Install the digital servo to camera gimbal



備好以上零件
Prepare the parts above

MC6500PRO 雲臺所搭配的是兩只超精密雲臺專用數碼舵機——DCS2600Digi，採用了特別為雲臺應用優化的控制程序，擁有卓越的運轉順滑度和精確的響應能力。它擁有 3.0kg/cm 的超大力矩，速度高達 0.06s/60，採用響應速度極高的空心杯馬達，內部採用 6 級齒輪減速機構。DCS2600Digi 這顆特制的雲臺專用舵機的性能非市場上普通鎖尾舵機所能比擬，專屬設計更加符合雲臺控制所需的性能！

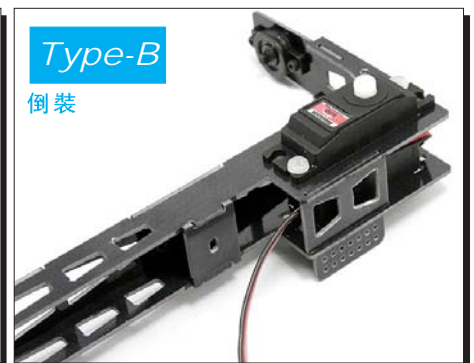
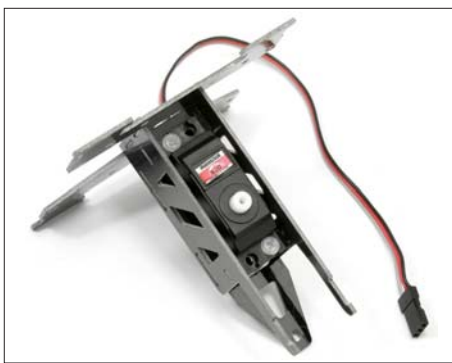
MC6500PRO comes with 2 ultra-precision digital servos DCS2600Digi, which is specialized for camera mount control. The control program applied in this servo is optimized for the control of the camera mount, so the servo runs smoothly when working and reflects accurately at working. The moment of force of DSC2600Digi is 3.0kg/cm; the speed could reach 0.06s/60. At the meantime, it uses quick reaction coreless motor.

This performance of this specialized camera mount digital servo is superior to any other common tail servo in the market. The special design meets the requirements for the performance of the camera gimbal.



1. 在組裝前，先將舵機搖臂拆下（如下圖所示）。
2. 使用兩顆尼龍螺絲固定舵機
3. 通電并完成角度確認後，方可安裝舵機搖臂

1. Before installation, please take the servo horns off (as seen on the below)
2. Fix the servo by 2 nylon screws
3. Power on and confirm the angle, then install the servo horn of the servos



每顆舵機只用兩顆尼龍螺絲固定，安裝方式採用上圖所示的對角綫安裝。
Using 2 nylon screws to fix the servo. Install the servo as the picture above.

STEP 6

連接滾轉驅動臂與滾轉控制臂

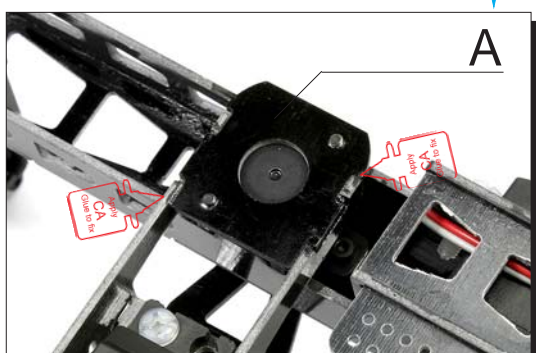
Connect the rolling actuating arm with the rolling control arm



Type-A 吊裝



Type-B 倒裝



將組件 "A" 安裝到如上圖所示的位置，并用瞬間膠進行固定

Install component "A" to the position as shown above, and fix with instant glue



1. 不可大力扭動或壓迫阻尼器的輸出軸，否則會造成損壞
2. 阻尼器連接處若有鬆動，可適量用膠，但不可讓膠流入阻尼器輸出軸內
3. 組裝完成后仔細檢查各轉動機構的運轉是否順滑
4. 安裝時若感覺壓入困難，可自行適當擴孔，以利于安裝

1. Do not apply too much force when rotate or press the damper output shaft rough, it may break the parts
2. Do not drip the adhesive into the damper output shaft, it may break the parts
3. Using proper adhesive if there is any loose at damper joints, but the adhesive could not dip into damper output shaft
4. If you find it is difficult to install the parts due to the hole, you can enlarge it suitably

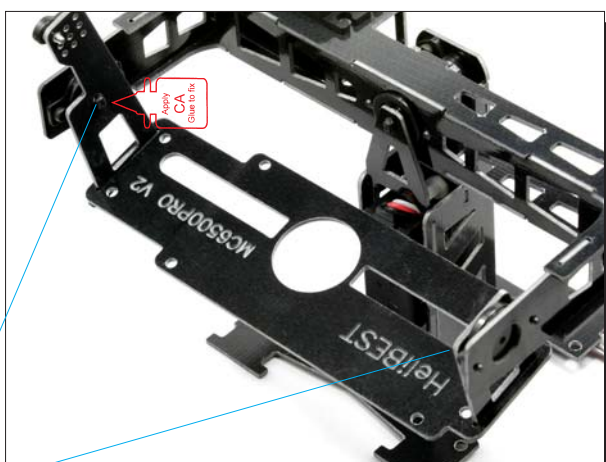
STEP 7

把攝影機固定平臺安裝到滾轉控制臂上

Install the camera fixed platform to the rolling control arms



Type-A 吊裝

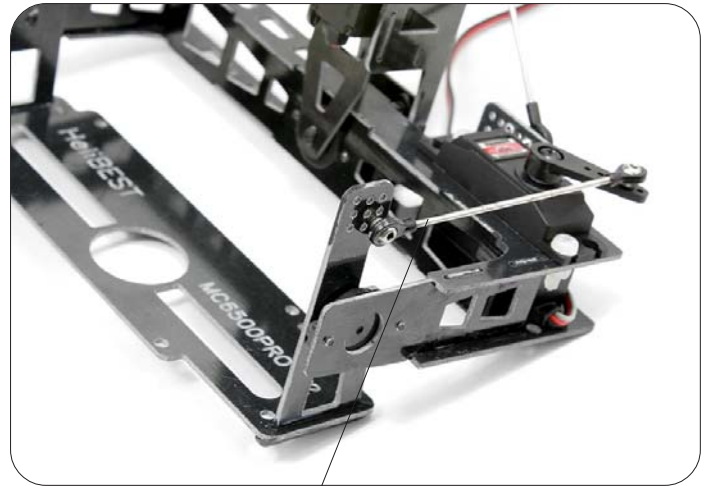
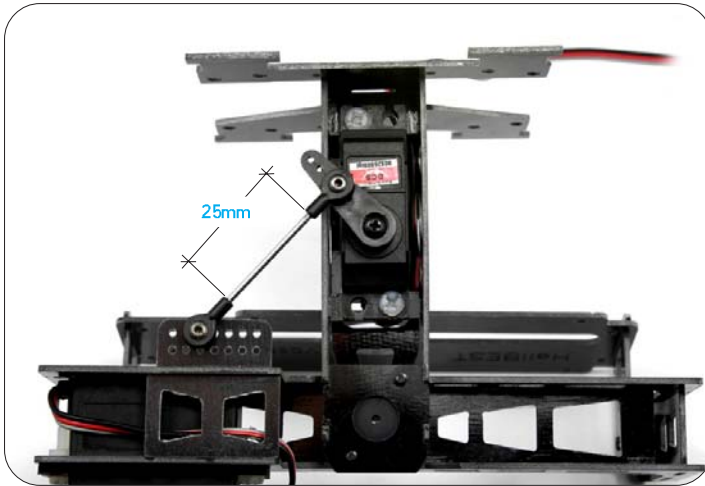


Type-B 倒裝

調整好角度 Adjust the angle
適當用力壓入 Moderate force
使用少量膠水 Use proper glue

STEP 8

安裝控制連杆 | Install the control linkers



滾轉臂水平狀態時，
此角度應為 90 度

When the rolling arm is at a
horizontal level, the angle
should be 90 degrees.

連接到第 3 孔
Connect to the 3rd. hole

連接到第 2 孔
Connect to the 2nd. hole

25mm

此角度建議為 90 度
90 degree is recommended

連接到第 4 孔
Connect to the 4th. hole

此連杆長度可根據需要適當調節
The length of the linkage can be adjusted
according to your own needs

Tips

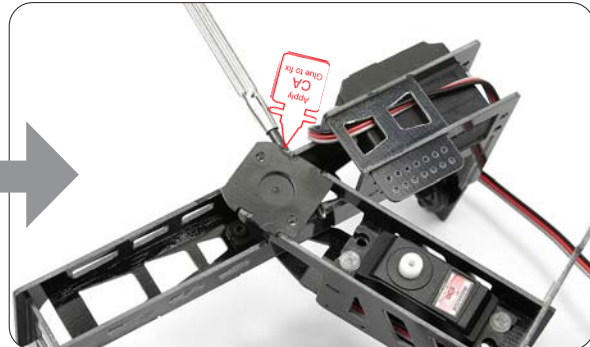
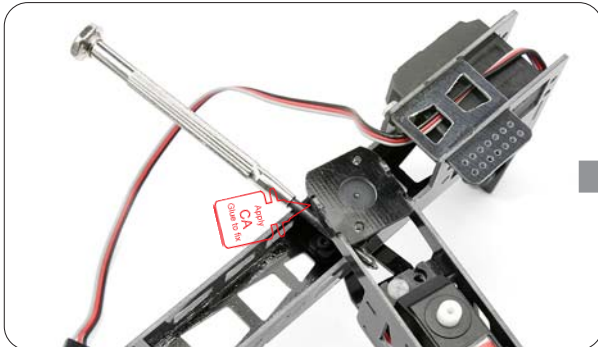
安裝竅門 | Installation tips



安裝時若感覺壓入困難，可自行適當擴孔，以利于安裝。
方法是使用 2.0mm 內六角螺絲刀如左圖所示進行操作，左右兩側
斜插入轉動幾圈即可。

If you find it is difficult to install the parts due to the hole on, you can
enlarge it suitably.

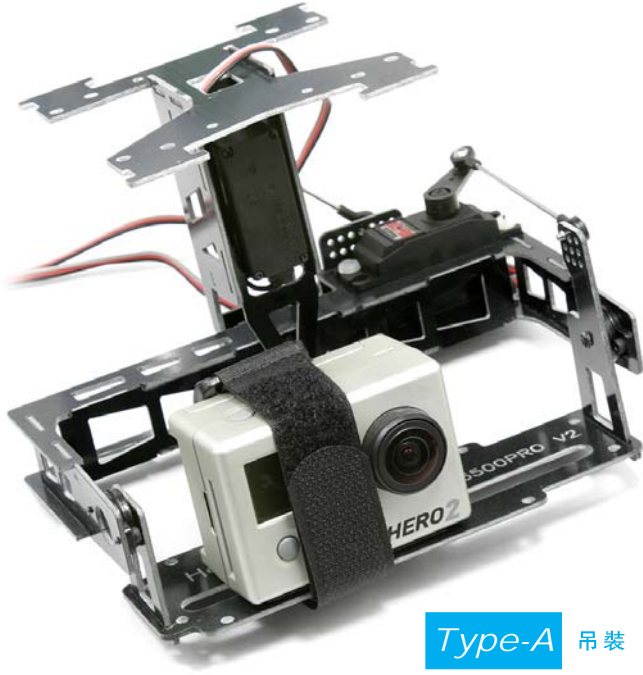
Use 2.0mm hex screwdriver as shown on the left, oblique insertion on
both left and right sides and then rotate a few times.



先在左側塞入 3.0mm 螺絲刀，使背板與安裝面壓緊，
再塗上瞬間膠。待干透后，再從右側塞入 3.0mm 螺
絲刀，使背板與安裝面壓緊，再塗上瞬間膠。

First insert the 3.0mm screwdriver from the left side, make the backplane
mount press the surface tightly, and then paint instant glue. After dry out,
insert the 3.0mm screwdriver from the right side, make the backplane mount
press the surface tightly, and then paint instant glue.

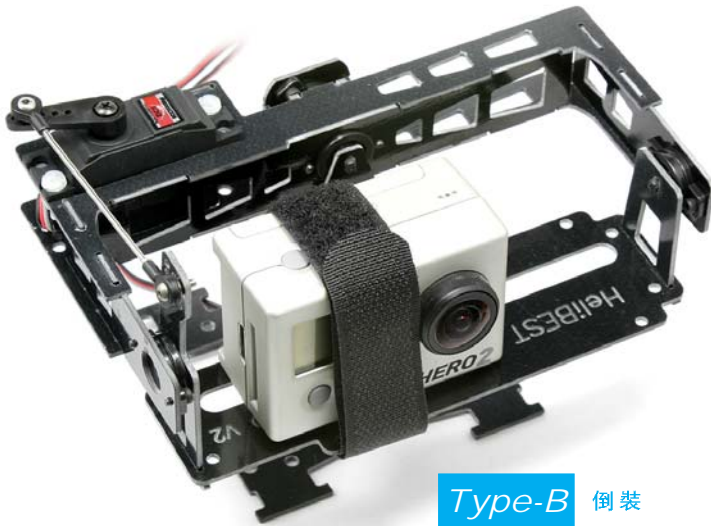
在 MC6500PRO V2 上安裝 GOPRO HD 攝影機
Install the GOPRO HD on MC6500PRO V2



Type-A 吊裝

標準安裝方式：適合絕大多數帶有加高腳架的小型航模飛行器，如 X650V4 / V8 等。拍攝角度為前視角至俯拍最大 60 度左右範圍內的拍攝角度。

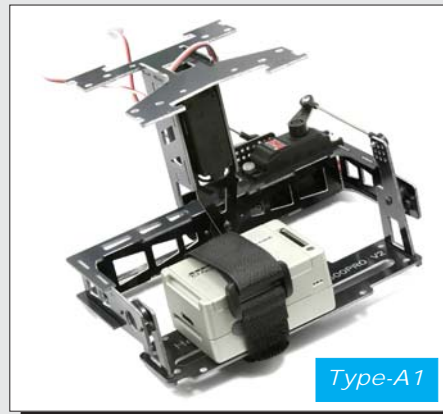
Standard installation form: For the vast majority of small-scale model aircrafts with heightened landing gear, such as X650V4, X650V8, etc. The shooting angle is between the former perspective to maximum 60 degrees high angle shot.



Type-B 倒裝

標準安裝方式：適合絕大多數不帶加高腳架的小型航模飛行器，如 X450Pro、F450 等。拍攝角度為前視角至仰拍最大 60 度左右範圍內的拍攝角度。

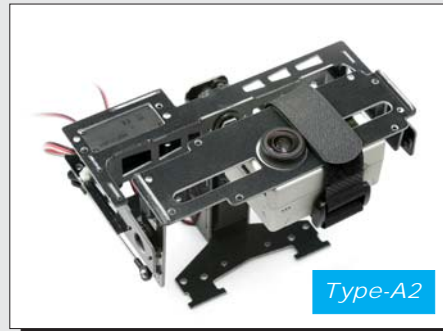
Standard installation form: For the vast majority of small-scale model aircrafts without heightened landing gear, such as X450Pro, F450, etc. The shooting angle is between the former perspective to maximum 60 degrees low angle shot.



Type-A1

正投攝影方式：將 GOPRO HD 的鏡頭以垂直 90 度的方式朝向地面進行拍攝。

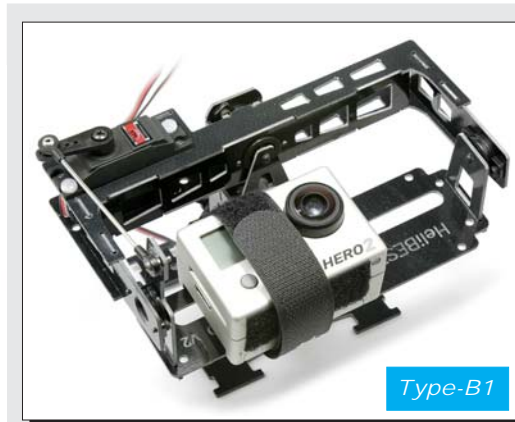
Vertical photography way: make the lens of GOPRO HD face the ground vertically.



Type-A2

倒裝仰拍方式：將 GOPRO HD 的鏡頭以垂直 90 度的方式朝向天空進行拍攝。選擇這種方式時，雲臺必須倒置安裝(類似于 Type-B)。

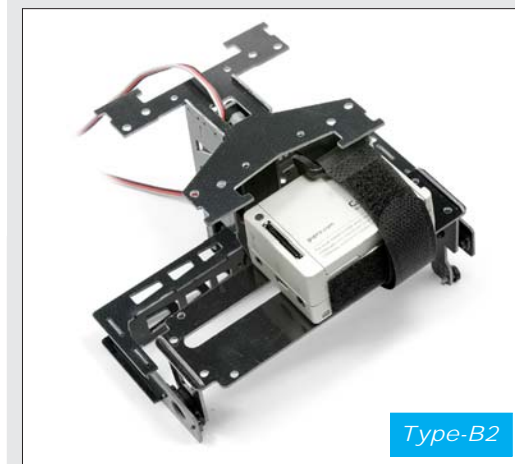
Inverted low angle shooting way: make the lens of GOPRO HD face the sky vertically. In this way, the camera gimbal should be installed invertedly. (similar to Type-B)



Type-B1

倒投攝影方式：將 GOPRO HD 的鏡頭以垂直 90 度的方式朝向天空進行拍攝。

Straight shooting way: make the lens of GOPRO HD face the sky vertically.



Type-B2

吊裝俯拍方式：將 GOPRO HD 的鏡頭以垂直 90 度的方式朝向地面進行拍攝。選擇這種方式時，雲臺必須吊裝(類似于 Type-A)。

Hoisting high angle shooting way: make the lens of GOPRO HD face the ground vertically. In this way, the camera gimbal should be hoisted. (similar to Type-A)

在 MC6500PRO V2 上安裝 SONY NEX-5 攝影機
Install the SONY NEX-5 on MC6500PRO V2



Type-A 吊裝



Type-B 倒裝



SONY NEX-5 配 SEL16F28 鏡頭時的全重是 355g
The weight of SONY NEX-5 with SEL16F28 Lens is:355g

該款相機搭配 MC6500PRO V2 雲臺時的全重是 470g
The weight of SONY NEX-5(Include Lens) with MC6500PRO V2 is:470g



Install the MC6500PRO V2 on XAircraft X650V4



Install the MC6500PRO on SIGMA Y6-500FG



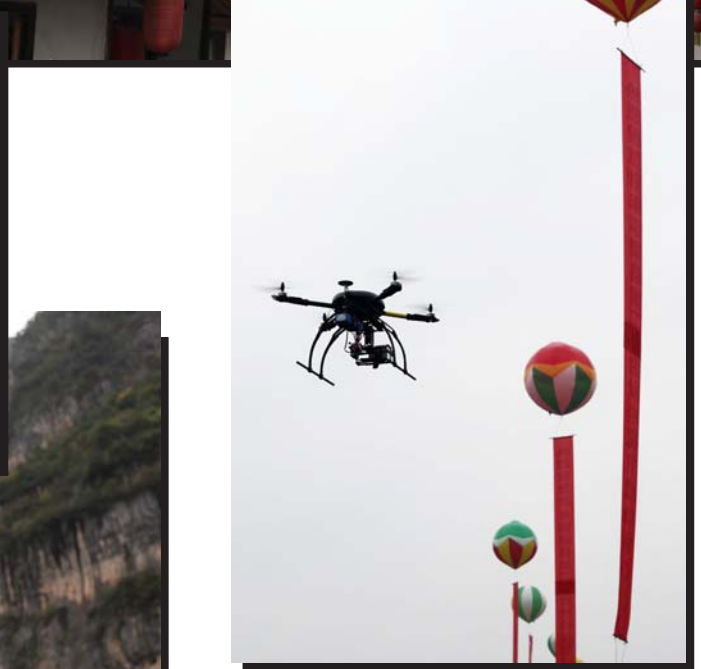
Install the MC6500PRO on XAircraft DIY-HEXA



Install the MC6500PRO V2 on DJI F450



Install the MC6500PRO V2 on SIGMA Y6-400W



*MC6500PRO V2
Camera Gimbal*

Ideal for Aerial Video