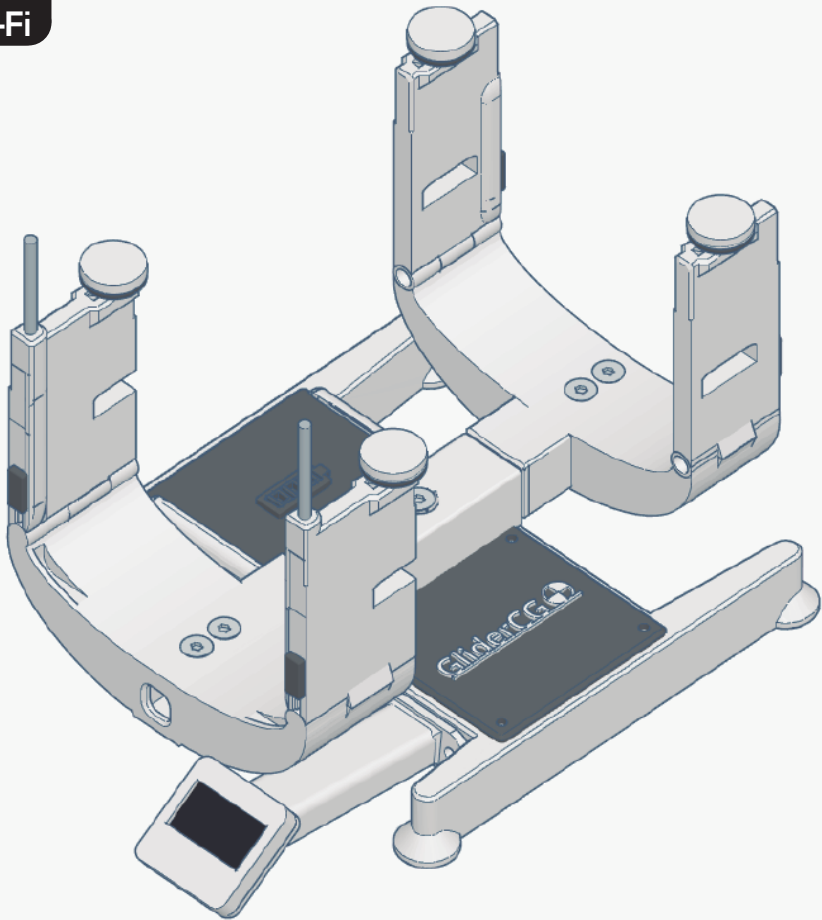


GliderCG V3

Digital CoG Balancer



Eng

Manual

V3-2019

Introduction

GliderCG is a CoG digital balance device for sailplanes of up to 8Kg able to provide the exact information of where the CoG is located in our glider by through a screen that also provides information of the sailplane s total weight.

Unlike the existing CoG scales based on the balancing of the sailplane on a supporting point, GliderCG uses the barycenter formula to obtain the precise calculation of our CoG without having to balance our sailplanes with the risks to the Integrity of them.

Concept

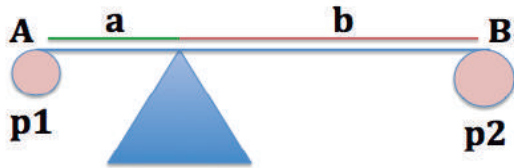
The condition for Static Equilibrium of the model plane, that is, it is not rotating, imposes the model weight is splitted in two reaction forces p_1 and p_2 applied in the supports A and B respectively, such as their resultant force passes thru the Center of Gravity of the model.

The position of the CoG is calculated by solving the equations:

$$axp_1 = bxp_2$$

$$a + b = K \text{ constant}$$

K is known for the manufacture of the scale.



With our constant desire for improvement, we have worked on all aspects of the device, both hardware and software, to offer an improved device in a compact form factor for easy transport and storage when not in use.

Its new main features:

- Folding arms with solid locking mechanism.
- WiFi + Oled Display. We can visualize the data through its built-in OLED screen or browse it through the WiFi connection for those situations in which due to our position we cannot easily access the screen reading. The WiFi connection also gives us the option to save the CG configuration of our different models and check for example the changes that result from a modification or repair.
- Battery Level indicator (WiFi Interface).
- Up to 8Kg

Characteristics

GliderCG is a precision equipment that has been carefully manufactured, assembled and calibrated before it reaches your hands.

All mechanical parts have been manufactured in PLA by FDM and SLA 3d printing.

The calibration coefficients have been calculated using a calibrated weight with a weight of:

Front Calibration Coefficient:

Rear Calibration Coefficient:

The distances between the different points of support have been verified with a digital caliper to the hundredth of a millimeter.

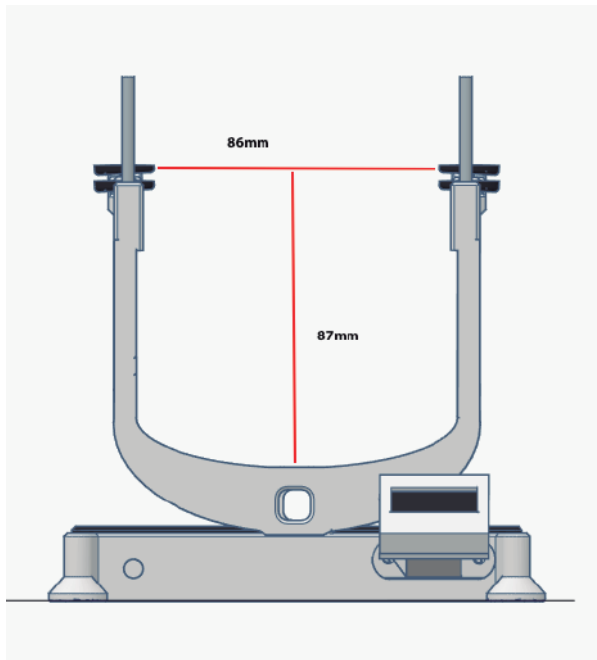
Dimensions Height x Width x Depth: 170x150x235mm.

Power supply: 9v DC, 6LR61.

Approximate consumption: 60mAh.

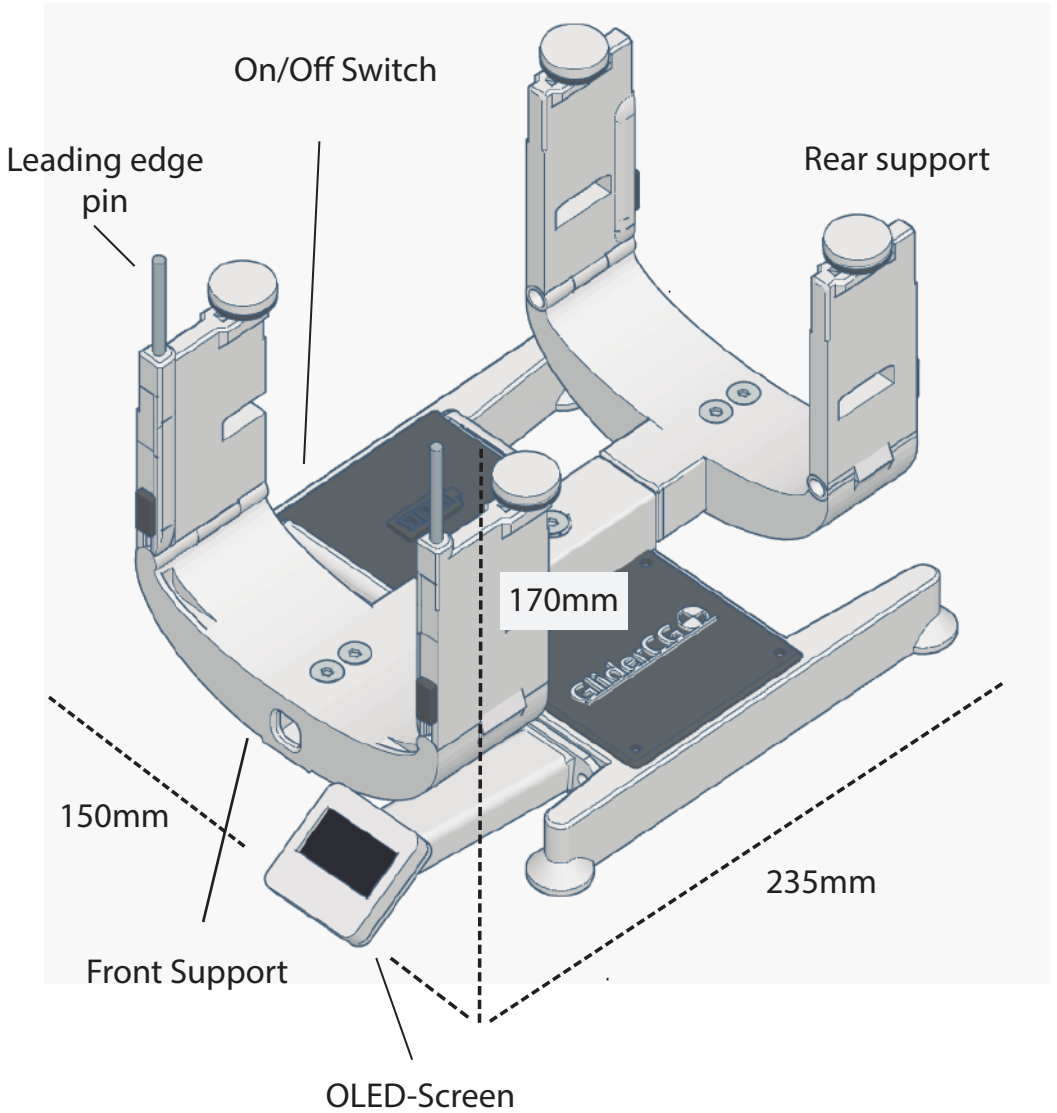
Max. Recommended weight 8Kg.

Maximum fuselage size allowed: 86mm width x 87mm height



Characteristics

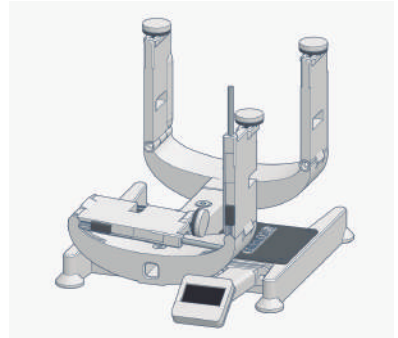
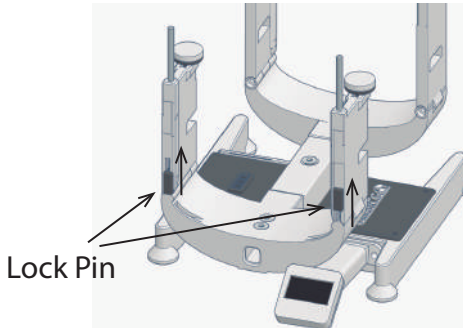
Device Dimensions High x Wide x Deep 170x150x235 mm.



How to use (Fold/ Unfold) - Front Supports

1 - To fold device: Move the lock pins to the upper position

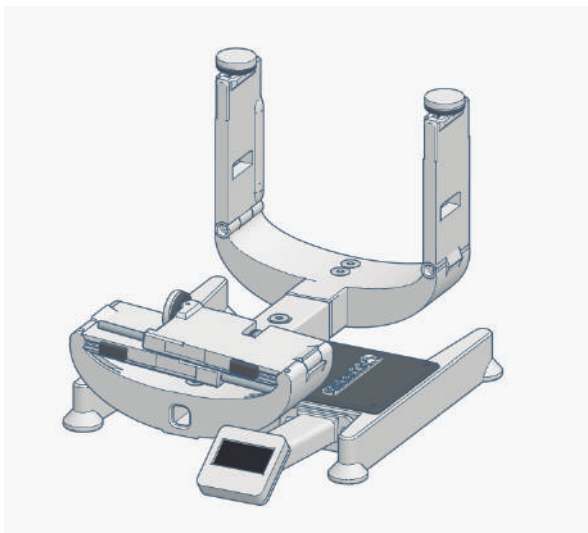
2 - Once in the upper position, fold the arm to the inside.



Pin Position: Up to fold; Down to lock.

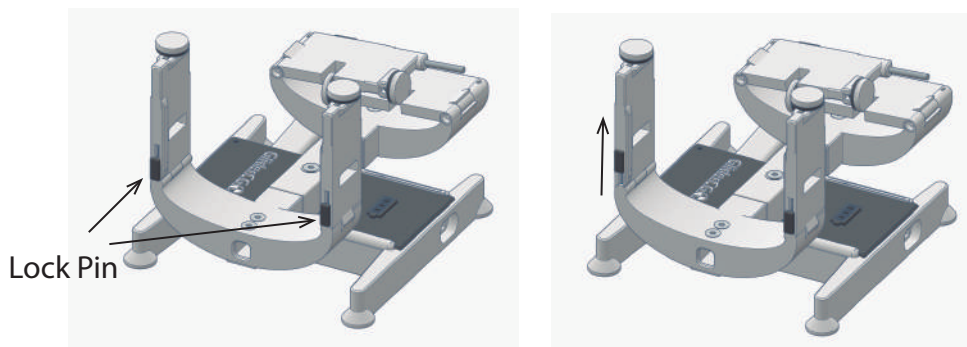
Caution: Arms can be damaged if try to fold while in lock/Down position

3 - Repeat the process for until fold both supports.

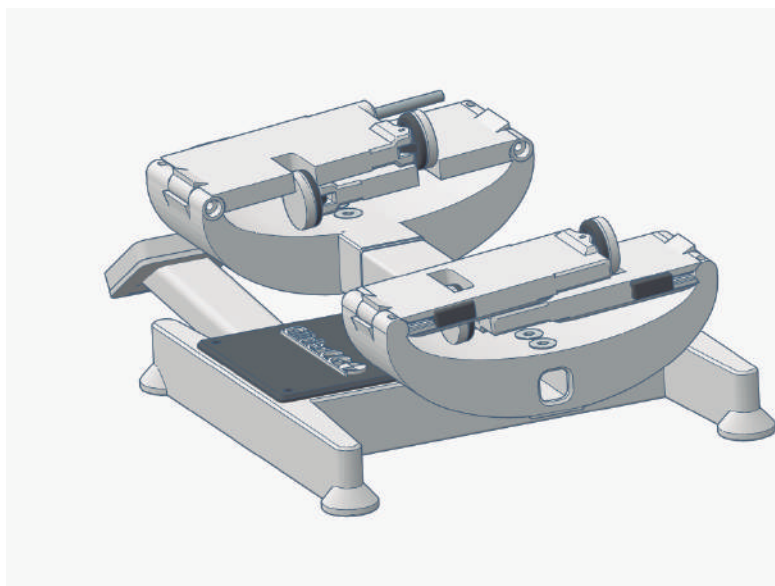


How to use (Fold/ Unfold) - RearSupports

1 - To fold device: Same as front support process: Move the lock pins to the upper position



Once folded the device can be easily and conveniently stored for next uses.



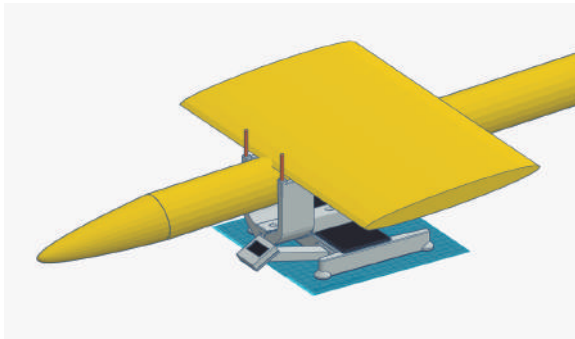
How to use

- 1° - Place GliderCG on a smooth and level surface.
- 2° - Verify that there is no object or weight in the device.
- 3° - Turn on the device with the switch located to the left.

After a few seconds a welcome message is displayed on the OLED screen that gives way to another screen with two lines "Weight:" and "CG:"

Due to the high resolution and sensitivity it is possible that at the start of the measurement the weight is nonzero. In that case it is necessary to verify that it is static on a flat and level surface and must be turned off and then on again until the initial measure is zero.

4° - When these lines appear (Weight and CoG) we can proceed to place our sailplane so that the fuselage is between the four supports of our device and the leading edge of the wing to stop with the vertical metallic supports like is shown in the following figure:



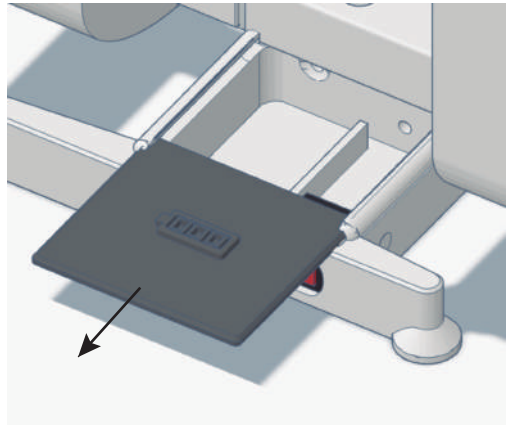
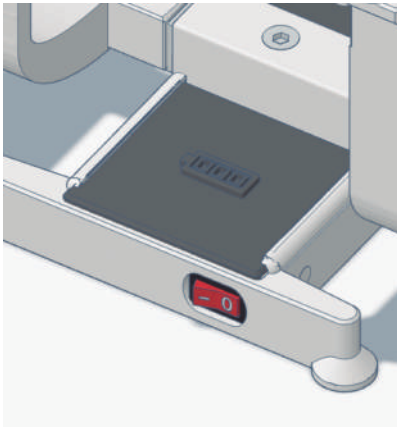
- 5° - Now the display shows an accurate reading of our CoG and the weight of our model.
- 6° - On the model itself you can make the necessary adjustments to locate your CoG in the place you wish, GliderCG will give you the reading of your position at any time.
- 7° - Once the adjustments are completed you can proceed to remove your model from the device and turn it off using its ON/OFF switch.

Replacing the battery

With the scale off we proceed to remove the lid marked with the battery symbol by sliding it outwards.

Once opened the battery compartment is exposed. Remove this carefully without damaging the wires of the adjacent weight sensors and replace with a new battery. Place everything and check the correct operation.

Before connecting, check that the polarity is correct. An incorrect connection can lead to permanent damage to the electronics.



Recommendations

Measurements in windy locations are not recommended because they introduce additional loads on sensors that distort measurements and condition the accuracy of the device.

Turn off the device after each use. Otherwise the battery can be discharged and will have to be replaced.

Keep away from heat sources. The material of the device, Polylactic Acid (PLA) can deform if there are high temperatures so it is not recommended for example to leave it in the car on sunny or hot days.

Keep away from any contact with water.

Do not exceed the maximum weight supported.

How to use

Connect the display to the system

In your Smartphone/PC, search for a WiFi AP called "GliderCG-V3" Connect to "GliderCG-V3" AP WiFi using 123456789 as password.

In many SmartPhones you will be advised that the network selected have no internetconnection and ask about selecting another WiFi conection. You might select "No".

The time while using GliderCG V3 your device will have NO internet connection.

Open your web browser and open a new window or browse to any new URL you never typed before like www.qkx.com You will get automatically redirected to GliderCG Scale screen.

If not succesfull to see GliderCG-V3 screen then try <http://192.168.4.1> and you will get automatically redirected to GliderCG V3 screen.

WARNING: GliderCG Scale is a wireless device, however it will not present any damage if it is used in the flight field, both for the user and for other modelers, but **CAN CAUSE INTERFERENCE** to a receiver that is close to the transmitter. In the same way, in the presence of several stations, the functionality may be lost because it is an ISM device.

How to use

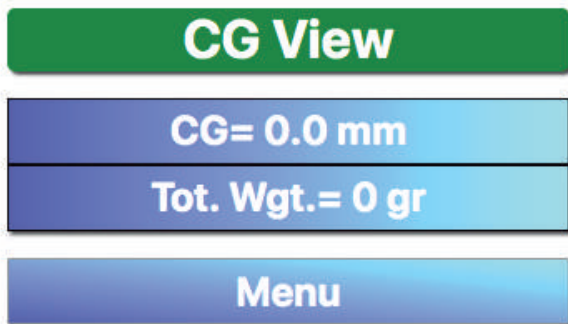
Browse GliderCG

Now you will be in the main screen that shows the center of gravity, in millimeters, as well as the total weight of the model in grams, CG View.

In the upper part, you can see a numbered rule that serves as a visual indicator of the CoG position.

At this time you can proceed to place your model on the upper pads of the GliderCG, making sure that the leading edge of the wing contact the two front pins.

GliderCG



In the lower screen you can see a button to access the device menu.

How to use

Browse GliderCG

By clicking on the Menu button you can access the different options of the device:

GliderCG

Menu

Batt. Level= 85%

Scale Tare

CG View

Target View

Target config

The first menu option "Scale Tare" allows you to zero the weight measurement or tare the scale.

How to use

Browse GliderCG

GliderCG Tare

By clicking on the "Tare" button, the device will perform a Zero of all the sensors and will return you to the CG View main page.

GliderCG

GliderCG Tare

**Verify Scale is free
from any load
then press "Tare"**

**Wait a few seconds
to be automatically redirected**

Tare!

Menu

By clicking on the "Menu" option, we will return to the options menu.

The next menu option is CG View. By clicking on this button we will return to the CG View main screen where you can see the weight and center of gravity of our model.

How to use

Browse GliderCG

Target View, allows us to visualize the settings of the position of the center of gravity that we have saved in the Target Select menu option that we will see later.

In this screen we can see how much our CoG position has changed since we saved until the present time, due to the different modifications that we make in our models over time and modify it if necessary or in case of having several equal models, adjust them in the same way.

GliderCG

GliderCG

Target View

Target CG= 150.0mm

CG= 0.0 mm

Tot. Wgt.= 0 gr

Menu

How to use

Browse GliderCG

Target Select, the menu next option , allows us to save the settings of the position of the CoG of your models to recover them later.

By clicking on the Sel. option you can choose between the models in the list and enter the name and CoG position in millimeters.

GliderCG

Target Select

No.	Name	Target	
0	PlaneA	0.0	Sel.
1	PlaneB	0.0	Sel.
2	PlaneC	0.0	Sel.
3	PlaneD	0.0	Sel.
4	PlaneE	0.0	Sel.
5	PlaneF	0.0	Sel.

Menu

Once the data has been entered or a model selected, two buttons will be visible: "Select" and "Save and Select" or "Cancel". Pressing them will return to the Target View screen where we can see the selected measure.

Safety and Security

GliderCG is not a Toy. For use only from 18 years and up.

Use GliderCG at your own risk.

GliderCG is not responsible for any problems arising from the use of this device. Avoid heat exposure and continuous direct sunlight.

Avoid water contact.

Disposal Used batteries:

Batteries must not be disposed of in the domestic waste. Every consumer is legally obligated to dispose of batteries properly at the designated collection points in stores where batteries are sold.



Appliance:

At the end of its service life, never dispose of the appliance in the domestic waste. Check with your local authority or your local waste disposal services for options regarding environmentally-friendly disposal.



Seguridad y proteccion

GliderCG no es un Jugete. Para su uso a partir de 18 años en adelante.

Utilice GliderCG bajo su propia responsabilidad.

GliderCG no se hace responsable de ningún problema derivado del uso de este dispositivo.

Evite la exposición al calor y la luz solar directa continua.

Evite el contacto con el agua.

Eliminación de pilas usadas:

Las baterías no deben desecharse en la basura doméstica. Todos los consumidores están legalmente obligados a desechar las baterías adecuadamente en los puntos de recolección designados en las tiendas donde se venden las baterías.



Aparato:

Al final de su vida útil, nunca deseche el aparato en la basura doméstica. Consulte con su autoridad local o con los servicios locales de eliminación de residuos para obtener información sobre las opciones de eliminación respetuosa con el medio ambiente.



**Konformitätserklärung
Declaration of Conformity
Déclaration de conformité
Dichiarazione di conformità
Declaración de conformidad**

Hersteller / Verantwortliche Person
Manufacturer / responsible person
Fabricant / Personne responsable
Fabbricante / Persona responsabile
Fabricante /Persona responsable

GliderThrow / Marco A. Moreno

erklärt, dass das Produkt
declares that the product
déclare que le produit
dichiara, che il prodotto
declara que el product

GliderGC

2014/53/UE 2006/66/CE 2014/30/UE 2001/95/CE
--

folgenden Normen entspricht:
complies following standards:
correspond aux suivantes norms:
corrisponde alle seguenti norme:
cumple las siguientes normas

Anschrift / Address / Adresse / Indirizzo / Dirección

Marco A. Moreno, Alonso Zamora Vicente, 5 28702 Madrid; +0034661808239

Email: GliderCG.info@gmail.com

Ort, Datum / Place and date of issue / Lieu et Date / Data e luogo /Fecha y lugar

Madrid, 28-Oct. 2018