Model 402 Operating Instructions Manual

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Please carefully read these instructions completely, especially Annex 1: SAFETY INSTRUCTIONS before using GliderTimer

1. Introduction.

GliderTimer is the ideal complement to GliderKeeper in the airfield with no need for mobile terminal.

It can organise a small F5J competition in question of seconds but you can as well use for some other apllications. With GliderTimer (mini) you can:

- Organise, manage record and report a F5J competition for a single group of 6 GliderKeepers for a 6 round contest.
- Use as the best individual training helper, it will announce the flight times and check the landing moment in true relation with the announced time, and it display for you Flight time as well as F5J "start height" of your model.
- It will liaise any moment with your GliderKeeper (in Wi-Fi mode). So you can use it for replication of GliderKeeper display in those complex to reach installations. Without needing to use your mobile terminal
- Also GliderTimer can act as a display of GliderThrow and GliderThrow-Quad. With no need of mobile terminal.

In hardware GliderTimer is a customisation of the widely spread M5Stack core unit. That features a 320x240 pixel TFT screen and three control buttons (see https://m5stack.com/).

2. Description.

a) ON/Reset button (red).
b) Control Buttons (left, mid right).
c) USB type C charging port.
d) Screen.
e) Battery module, red.

GliderTimer menu driven application has been designed for a simple and direct interface.

3. Operation.

Power Sequence.

To start GliderTimer press once Power/Reset button (in the left side of the screen).
To power GliderTimer off, press and hold Power/Reset button for three seconds.
To reset GliderTimer. Press once Power/Reset button.

Charging.
GlideTimer battery is 850 mAh single LiPO cell. It gives around 3 hours operating time after full charging.
To charge battery use provided USB cable connected to a 5v USB power source as a PC or phone charger.

Menu operation.

After booting up (about 3 seconds) the init screen will be visible, and the menu labels will appear on top of the control buttons.
In most of the screens the labels will be available and almost always the three buttons will show the same behaviour.
Menu button (left): Will bring you back to the Main Menu with no action taken on the competition. It is like a “cancel” button. Press here to come back to the Main Menu.
Scroll Button (mid): use this button to scroll or navigate thru each page option.

Menu Management.

All thu the menu pages the structure is very much the same. You have an indication of the menu you are and the competition number and round number you are.
The ">" symbol will highlight which option you are about to select.
Press Scroll to change the option.
Press Select to activate selected option.
Press Menu to exit this menu level to come back to Main Menu.
Press Power/Reset to reset the machine. This will be necessary to exit from "Pick Data" selected menu options (see below).
Note: if you see a double chevron in a menu line ">>" this means there still are options available in this menu, continue scrolling to access them.

4. A competition overview

As soon as it powers up GliderTimer will accept Flight data from a GliderKeeper. Despite the competition status GliderTimer will always display whatever Flight Data pack is received. Another thing is this data pack can be accepted for a record in competition data base (for instance competition is closed).

As a tiny competition manager, GliderTimer can organise your event like you were in a fully managed contest and this requires some "organisation".

GliderTimer can store up to 9 different competition events. Each with up to 6 rounds and up to 6 pilots. Configurable via menu. (Menu/Management/New Competition/#Pilots/#Flight Minutes/#Rounds).

Really GliderTimer takes care of the ID, or serial number, of the involved GliderKeeper units, but to improve readability of results, a database of up to 15 pilots can be set up to introduce the corresponding name and nick name (4 characters) to a GlideKeeper. This is done via Wi-Fi using your terminal keyboard.

Only one competition can be open at a time, they are given a sequential number. To perform a competition your will have to open it. This will close previous competition if it was still open.

Then you and colleagues have to go to your landing spots and then "run a flight". GliderTimer will beep you the timing and will become a tiny annunciator panel for the round progress.

Exactly at the moment of pressing the selected minutes pre-advise to prepare for launching, GliderTimer will store in non-volatile memory the UTC time of launching and landing of this round´s

flight. Menu will not be available, only the annunciator panel screen is available in this moment, except for incoming Flight Data.

When landing, take note of landing distance of the plane and hold GliderTimer near the plane (around 2 m) and make the plane´s GliderKeeper to enter Wi-Fi mode, by bringing the airplane to this nose down attitude for longer than 3 seconds.

GliderKeeper will detect GliderTimer presence and will send the flight data to GliderTimer. A two tone beep will show the connection has been established and, if GliderKeeper is equipped with a GKSync, almost instantaneously a second tone will advise the result is available in GliderTimer screen.

If no GKSync is available, then for a period between 7 to 20 seconds both units will try to synchronise their clocks.

This synchronisation is necessary to manage scores of your competition and it will advise if launching and landing were done within working time.

Enter landing distance via scroll and select buttons to strore this data into the competition table.

-In this example screen: during Competition Number 2 and in Round 2 Pilot number 3, whose GliderKeeper ID is D1:65:90:48, and is using Fw-STD_8.23, Scored 5m in F5J Start Height, Flight duration was 1 minute and 17 seconds, landed at less than 1m from landing spot (input via mid button). –

Ready for pressing the Select Button (right) to store in memory.

If you press Menu Button the Flight data will be rejected and not stored.

“to Land:” messaje appears as the flight time was still in progress.

Power off GliderKeeper of the plane and go with GliderTimer to the next airplane to gather its data.

Note this flight data gathering is possible while the annunciator panel is still ON, so you can save time collecting data of those non fortunate pilots that did not use all the working time.

Our recommendation is you do this while there is still more than a minute for the next annunciator panel change so screen changes are not intermixed. You will get used very soon.

Cases when Flight Data will not be accepted in competition:

-Competition is Closed.
-Pilot (GliderKeeper) cannot be accepted (Competition full of pilots).
-Record already used (this flight# in GliderKeeper is already recorded in another round).

-Record Already used (This pilot has already scored in this round).

Cases when Flight Data will cause a ZERO score:
-Emergency motor was used.
-Launching before Launch Tone.
-Landing after one minute working time finished. (Landing time).

Cases when Landing distance bonus will be Zero:

-Landing after Landing Tone, but less than one minute later, -Timeout. (Flight time will be adjusted to Landing Tone time, and thus GliderKeeper indication may be different).

If Synchronisation failed or not possible (no GKSync in use), -In this case the User will be prompted to confirm whether it was timeout N-> distance accepted Y->distance==0.

Proceed sequentially for all pilots in this round. If a "RUN Flight" command is performed all pilots whose data is not stored yet will score a zero, and next round´s data set will be open for storing.

Once those records have been taken, you can browse the results of your competition in real time by browsing the menu/show results.

5. Tones during a Flight.

During the pre-advise period before launching.

One Beep every minute O´clock.

Count Down Before Launch time, Landing time, and end of landing time:

One Beep before 30 seconds.

One Beep before 20 seconds.

10->6 sec: Five Beep.

5->1 sec: Five "Bip"

0 sec.: One Long Boop.

After Launch Boop.

One Beep after 3 seconds.

One Beep after 20 seconds.

One Beep every minute O´clock.

In initial Fw_STD_4.23 these settings cannot be configured.

6. Browsing the Menu.

Main Menu

Run Flight. Select this option to start the timing for a competiton´s round. You will be prompted how much per advise for the launching is needed.

Pick Data. Select this option to become a STA of a Wi-Fi Access point like your home´s wifi. A GliderThrow or GliderKeeper unit. We will be coming back to this point

Show Scores. Select this option to see in GliderTimer screen the actual scores in the current competition or choose to review results of a previously recorded competition.

Management. Select this option to start a new competition, access the setting of the unit or erase all competition data.

Show Scores menu.

You can see the competition results by round and by pilot, the final result is shown in the round view. In pilots view you can check your pilot name and nick name.

NOTE: When you select a competition different than current competition to see results, current competition will be closed.

NOTE: in Show Results the Select Button will cycle the current presentation in two bigger size characters pages (good if you are more than 40). While Scroll Button will still be scrolling sequentially rounds or pilots.

Management menu.

New competition, to start a new competition, closes the current.

Settings will allow you to change Volume of the beeps and Brightness of the screen within the technical b,oundaries of the device.

The **about GT** mini Screen will give you the ID and configuration of your device and as well will display UTC time.

7. The Pick Data menu.

GliderKeeper will link to GliderTimer automatically, but it may be the case that for a connection failure or due other causes, GliderKeeper may be at AP mode, that is, it is not trying to connect to another Wi-Fi.

If this is the case you can then select Pick Data Menu, GliderTimer will scan available Wi-Fi networks and will prompt to you the ones of your interest:

a) The Id number of those GliderKeeper in AP mode.
b) If there is a GliderThrow available.
c) If available, your stored Wi-Fi SSID´s (names) for accessing Internet thru one.

Select your choice to start data transfer.

Picking on GliderKeeper ID it will perform the same data transfer as an automatic transfer.

The only way of exiting after a Pick Data selection is by resetting (Power/Reset) the unit.

NOTE: Recorded competition data WILL NOT BE LOST so reset GliderTimer fearless. This reset may be comfortable as well if all pilot's data is already recorded and still some flight time is remaining, you can save time by resetting the GliderTimer unit and you will be in condition to run next flight immediately.

8. GliderThrow screens

As a convenience gadget, GliderTimer can as well display the throw measurements of these units, either GliderThrow or GliderThrowQuad instead a mobile terminal or PC.

The buttons will change according the web interface menu of GliderThrow. Use GliderThrow according its manual.

9. UTC Synchronisation: Connection in STA mode (after Picking your SSID).

Despite GliderTimer clock is very accurate, the timing for F5J also is very demanding. In worst case a unit can drift its time about 100 miliseconds per day (half a minute in a year).

So we recommend you perform a UTC synchronisation less than 24 hours of your competition.

To perform a synchronisation you must give internet access to GliderTimer, either at your home´s router or by your mobile´s hot spot or shared connection.

NOTE: Internet must be available, this means it is not valid you engage GliderTimer AP, which is always on. You must use Pick Data to an internet capable Wi-Fi.

Once it is connected to internet, GliderTimer will automatically synchronise to NTP servers, exactly the same as your PC or mobiles are doing all the time. It will need about 30 seconds and the “mobile data” consumption is negligible.

10. Wi-Fi Menus

GliderTimer uses very much the same approach for updating WiFi credentials, Firmware and UI softwares as GliderKeeper does.

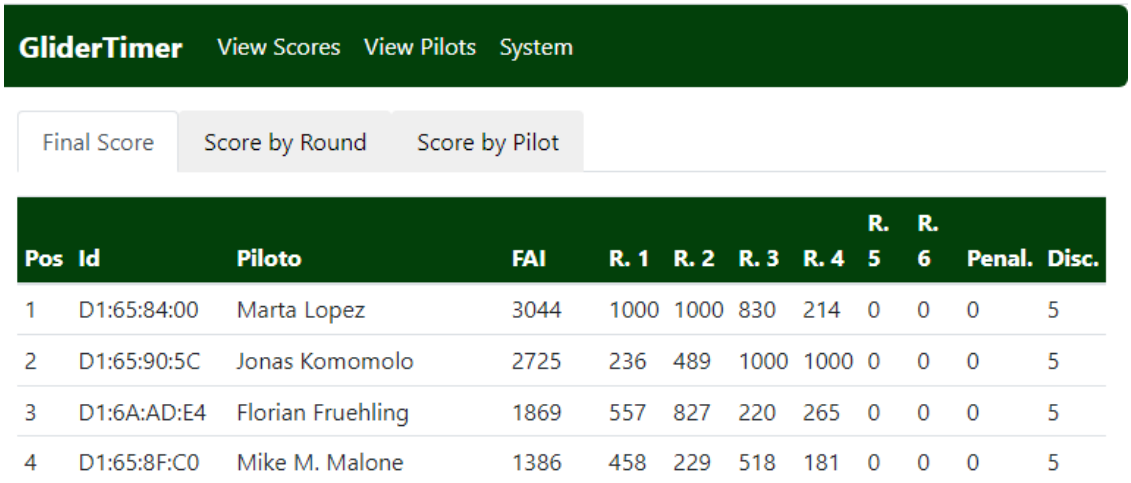
We consider you are already familiar with these. See GliderKeeper manual.

As brand new you will have to give your favourite Wi-Fi credentials connecting to a Wi-Fi whose name in “GliderTimer” and password is “123456789”

There you will be able to access System Menu to update Fw, UI and preferred Wi-Fi credentials (that will be used for synchronisation) via Pick Data menu.

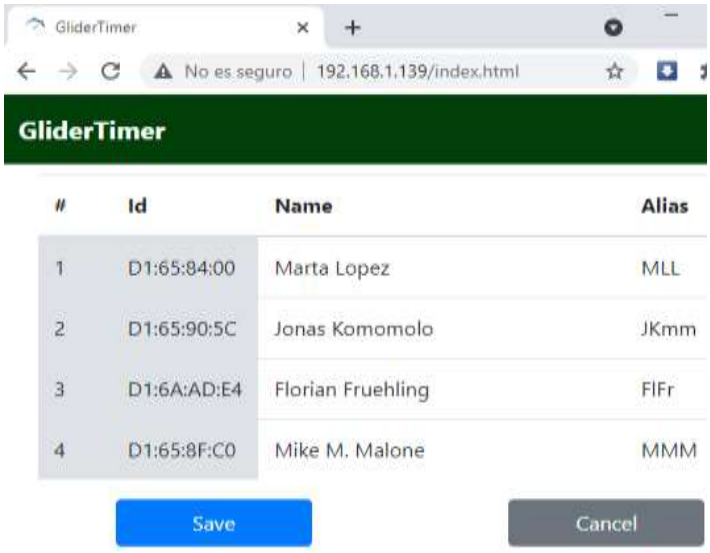
You can also review the current competition scores accessing GliderTimer with a browser into 192.168.4.1 or glidertimer.local when connected to GliderTimer Wi-Fi AP, or typing the IP number shown in the Pick Data screen when in STA.

Change the current competition in GliderTimer menu to review or dowload another competition.



Pos	Id	Piloto	FAI	R. 1	R. 2	R. 3	R. 4	R. 5	R. 6	Penal.	Disc.
1	D1:65:84:00	Marta Lopez	3044	1000	1000	830	214	0	0	0	5
2	D1:65:90:5C	Jonas Komomolo	2725	236	489	1000	1000	0	0	0	5
3	D1:6A:AD:E4	Florian Fruehling	1869	557	827	220	265	0	0	0	5
4	D1:65:8F:C0	Mike M. Malone	1386	458	229	518	181	0	0	0	5

In the Pilots view you will be able to configure names and nick names.



The checked-in GliderKeepers will be automatically added upon the first flight is recorded for this GliderKeeper unit.

To delete a GliderKeeper from the list type in the name field “delete” and next time GliderTimer will be powered up that pilot will be deleted.

11.System and Updating

In System, very similar to GliderKeeper you can configure the credentials of two Wi-Fi networks, we recommend the one of your home and the one that your mobile generates in "hotspot" or "Shared Wi-Fi" mode.

You can as well download the selected competition Score tables. (Competition number is selected via GliderTimer menu). They are neutral .csv files than can be processed via any spread sheet as Excel or Libreoffice Cals.

Future UI version will support export to GliderScore or GliderLink systems.

As well as GliderKeeper the software comes in two parts the Firmware and the User Interface (UI).

NOTE: Do not try to update system via USB data cable; it would require much specialised skills. If not properly done, severe misconfiguration may occur and unit may not be operational anymore. Normally those units would require servicing. Apart of shipping costs, reconfiguration service may present additional charges.

Please do not attempt to upload via USB. This feature has been left for future enhancements.

12. FAQ

Q: What is GKSync?

A: GKSync is a small battery backed up high accuracy that will maintain GliderKeeper time clock to UTC so in case you needed to power down your GliderKeeper for whatever reason you do not lose your Flight Data timing.

Q: Is GKSync mandatory for using GliderTimer?

A: No, you can use your plain GliderKeeper, the only requirement is to use a FW in version 23 or higher in your GliderKeeper. The offset is it will take some more seconds to collect GliderKeeper´s data, and if power is lost then an uncertainty will appear on landing time with respect the Tones of GliderTimer

Q: Is GKSync forbidden in official competition?

A: No, the performance of GliderKeeper as a simple FAI altimeter is transparent to the use or not of GKSync.

Q: Can I access SSID "GliderTimer" Wi-Fi during a competition?

A: On the paper yes. We recommend not being hocked to this wireless LAN with anything else than the GliderKeeper trying to synchronise data during these seconds. Apart of these moments there is no restriction.

Q: How long will last GliderTimer batteries.

A: We have done some tests with longer than 3 hours, enough for a couple of competitions. If more time is needed we recommend using an USB battery bank to extend battery duration.

Q: What happens if a pilot reaches an open competition in second round or later?

A: Nothing. If there is still room, those pilots will get enlisted in the competition. Scoring zero points in those rounds not stored.

13. Support

If you need some help, have a suggestion, something to improve, you think you found a bug or just want to share your opinion or pictures, please send us an email to support@gliderkeeper.com with as much detail you have available. Please send us details like ID#, SW version, captured screens, FlightData.bin of your flight and, if available, picture of the model or the airfield… in those questions that having this info can help to diagnose.

We always welcome your contact and will come back to you as soon as possible. It is our understanding that listening Customer Voice is the best way for us to improve.

14.Specifications

Dimensions: 54 x 54 x 24 mm.

Weight : 75 gr.

Speaker : 1W.

Screen : 320x240 RGB TFT.

Power Supply: 5 V USB chager type C connector.

Current consumption: Aprox 200mA.

Battery: 110+750 mAh 1S2P lipo.

Memory storage: 9 Competitions and 15 pilots.

Wi-Fi: 802.11 b/g/n WPA/2

Annex 1: SAFETY INSTRUCTIONS

Following the safety instructions below, and using common sense, will be the warranty of enjoying your GliderTimer together with your model with no surprises. The following instructions are not essentially different that the ones a responsible hobbyist should follow:

1. Read instructions.

All the safety and operating instructions should be read before GliderKeeper is operated.

2. Retain instructions.

The safety and operating instructions should be retained for future reference (for inst.: file it in your mobile).

3. Follow instructions.

Operating manual should be followed.

4. Persons.

GliderKeeper can generate Radio Electric signals and is not a wearable. Use at more than 20 cm from human body. Special care should be taken for those that use an implanted medical device like a pacemaker.

5. Children

GliderKeeper is not a toy and should be used by adults or with a direct supervision on younger pilots.

6. Commercial Aviation.

As Wi-Fi equipment, always follow instructions from the crew when using inside a commercial airplane cabin.

7. Water and Moisture.

GliderKeeper is not water resistant. It should not be used in condensing environments.

8. Charging.

Always use USB type C cable and power from a 5v USB charger outlet

9. Ventilation and cooling.

Do not leave GliderTimer powered inside a non ventilated enclosure.

10. Installation.

GliderTimer has small magnets that may help its installation. Always install it in such way accidental drops are avoided..

11. Damage Requiring Service.

Disconnect GliderTimer and take to qualified service personnel under the following conditions:

a) When signal and power connector is damaged

b) If liquid has been spilled inside the device.

c) If the product has been exposed to rain or water.

d) If the product has been dropped or damaged in any manner.

e) When GliderTimer does not work as expected.

12. Servicing.

The user should not attempt to service this product beyond that described in the operating instruction. There are no user serviceable parts inside GliderTimer.

13. SW Updates.

Always update GliderTimer firmware and User Interface with firmware coming from GliderKeeper.com.

NOTE: Do not try to update system via USB data cable; it would require much specialised skills. If not properly done, severe misconfiguration may occur and unit may not be operational anymore. Normally those units would require servicing. Apart of shipping costs, reconfiguration service may present additional charges.

Please do not attempt to upload via USB. This feature has been left for future enhancements.

14. Disposal.

When your GliderTimer has reached the end of its useful life do not dispose in regular waste. Contact your local authorities for disposing in an approved electronic equipment recycling container. Note there are LiPo batteries inside.

Annex 2: How to improve Wi-Fi link in some noisy environments.

If Wi-Fi connection is slow or it is lost, this is sometimes some other 2.4 GHz signals are present. Recommendations are given for a mobile Phone trying to connect in an airfield

1.- Carbon fibre fuselages can work as a shield for RF signals, install your **GliderKeeper** in a position where can have direct sight view of your terminal, the canopy lid is a easily steering part.

2.- Avoid nearby transmitters. Have you switched off your radio?

3.- Get closer both units together. Many times communications are best if both devices are close each other in the range of 0,5 to 1 m. Bear in mind that signal strength decay with the second power of distance so to get a better signal to noise ratio than a transmitter that emits 10 times more power than your mobile you have to be approx. 3,5 times closer

4.- Shield the interferences. Many times your own body can work as an effective shield from a nearby noise source. A nice carbon wing is also a shield to try.

5.- Procure a better environment. Sometimes by moving just a couple of meters changes stationary waves that might be causing trouble. Something that always works is going far enough from noise sources

Declaration of Conformity:

CE

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

Marta Lopez Lopez/ GliderKeeper.com

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

GliderTimer Model 402

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

2014/53/UE
2014/30/UE
2011/65/UE
2001/95/CE

Draft EN 301 489-1	Mar, 2017
Draft EN 301 489-17	Mar, 2017
EN 300 328	Nov, 2016
EN 55024	Nov, 2010
EN 55032	Aug, 2015
EN 60950-1	2006
EN 60950-1/A1	Mar, 2010
EN 60950-1/A11	Mar, 2009
EN 60950-1/A12	Feb, 2011
EN 60950-1/A2	Aug, 2013
EN 62311	Jan, 2008

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