FLYMASTER

VARIO LS

Vario. Light. Simple.

www.rpmsport.net

ENG

USER MANUAL

v 1.4

Index

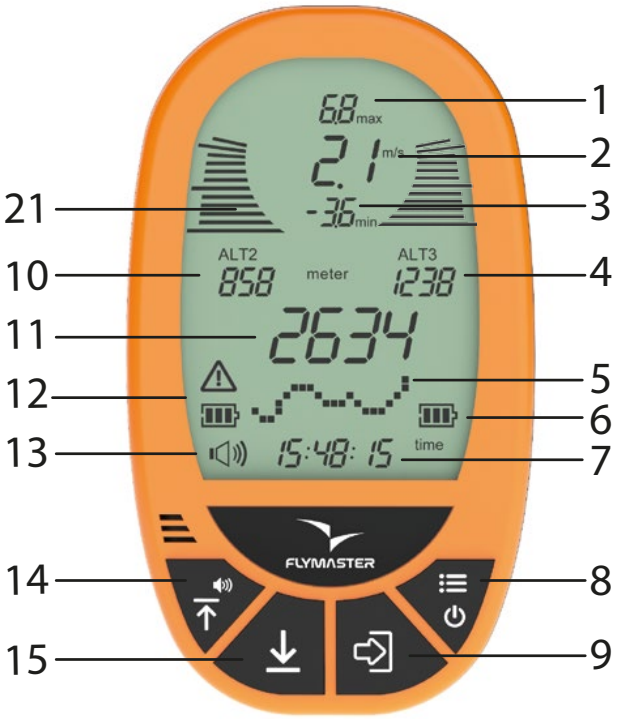
1.Vario LS Overview
2. Display layout
3. Designer Software
4. Firmware update
5. Reset and Fail Safe mode
6. Place and secure the Vario LS
7. Battery
8. Basic Settings
9. Menu sequence
10. Advanced Settings
11. Flights log
12. Downloading flights
13. Important notes

USER MANUAL

v 1.4

1. Overview

Flight page and buttons



Back view

1 - Max. climb rate
2 - Digital Int. Vario
3 - Max. sink rate
4 - Altimeter 3
5 - Barograph/Menu
6 - Battery level
7 - Clock / Flight time
8 - Power/Menu/Esc
9 - Enter
10 - Altimeter 2
11 - Altimeter 1
12 - Low battery
13 - Volume level
14 - Up/Volume
15 - Down/Quick Reset Alt 3
16 - Serial number
17 - Velcro
18 - Reset
19 - Lanyard hole
20 - Mag. Connector
21 - Analog Inst. Vario

2. Display layout

Flight page

1. Max. climb rate: This value indicates the maximum climb rate achieved during the current flight

2. Digital Integrated Vario: This value indicates the integrated climb/sink ratio.

3. Max. sink rate: This value indicates the maximum sink rate achieved during the current flight.

11 . Altimeter 1: Can be used as main altimeter (can be used as ASL altitude).

10 . Altimeter 2: Second altimeter (can be used as an altimeter of any desired reference)

4 . Altimeter 3: Third altimeter (can be used as an altimeter of any desired reference). Can be reseted any time by pressing DOWN key.

5 . Barograph/Menu: This field can show either the altitude graph during the flight, the options menu or any other info.

6. Battery level: This indicates the 3 level battery state (full, medium, low)

12 . Low bat. - This indicates that the battery entered in a “reserve” state. Also have a 3 level indicator.

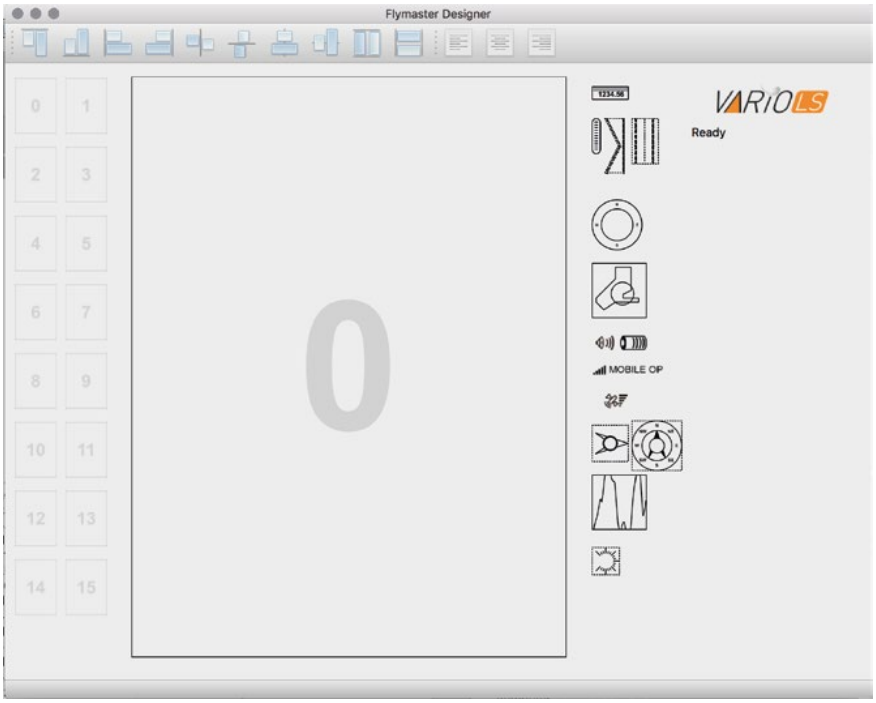
13 . Audio level: This indicates the volume level of the VarioLS speaker (Mute, Low, Medium, High).

7. Time/Flight duration: This will show either the clock or the flight duration.

21. Analog instant Vario: This value indicates the instant climb rate.

22. Analog instant Vario: This value indicates the instant sink rate.

3. Designer software



Designer in an application, available for Mac OS, Windows and Linux, developed by Flymaster. Designer allows you to manage the entire range of Flymaster instruments including the VarioLS.
For the Vario LS the following functions are available:

- Firmware upgrade
- Download and sync your flights to Flymaster Cloud Flights (see chapter 8)

1. Download the Designer from: https://www.flymaster.net/downloads#

2. Install it on your computer

3. Run the Designer

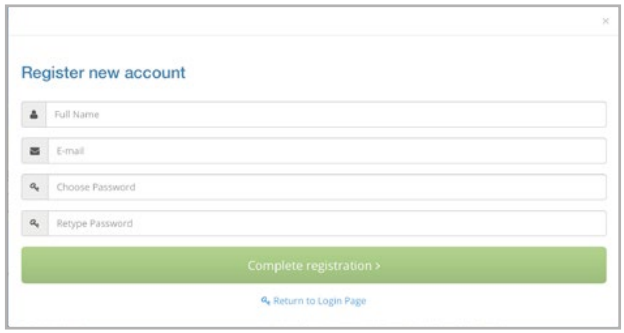
4. Connect the Vario LS with the supplied Magnectic USB cable to your computer. Turn ON the Vario LS.

5. Click on the instrument logo

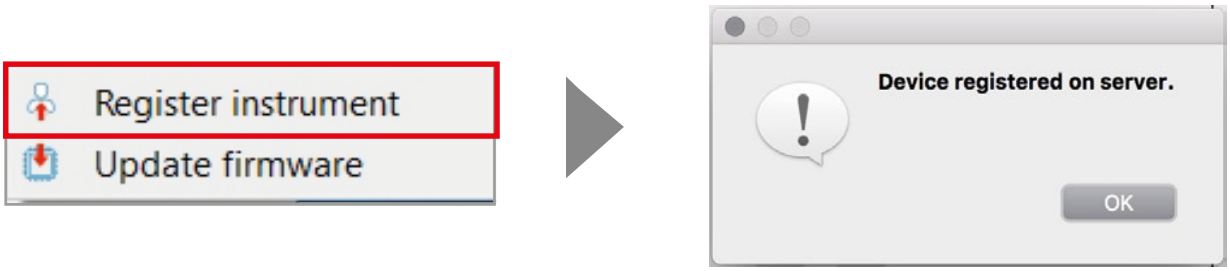
3.1. Designer software

6. Register instrument : If you already have an account on the Flymaster network, just log in with your Cloud user email and password.

7. If you don't have an account, create one. During the account creation process a verification email will be sent to the provided email, so be sure to use a valid email account. If you do not receive the verification email within a couple of minutes double check you spam to be sure it hasn't been snagged.



7.1. Now you can register you instrument.



4. Firmware update

Automatic update

1. Connect the Vario LS with the supplied Magnectic USB cable to your computer. **Turn ON the Vario LS.**
2. Run the Designer
3. The Designer should detect an outated version of the firmware and will prompt you to update.

4. Click “Yes” and the Vario LS shoud load the firmware and reboot itself.

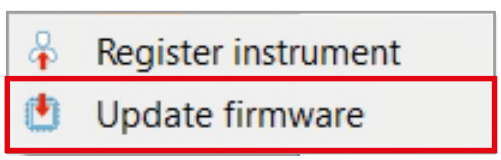
Manual update

If for some reason the Designer does not detect the outdated firmware version, or if want to use any previous firmware version, you can force a manual firmware install.

1. Connect the Vario LS with the supplied Magnectic USB cable to your computer. **Turn ON the Vario LS.**

2. Run the Designer

3. Click on the instrument logo and choose “Update firmware”



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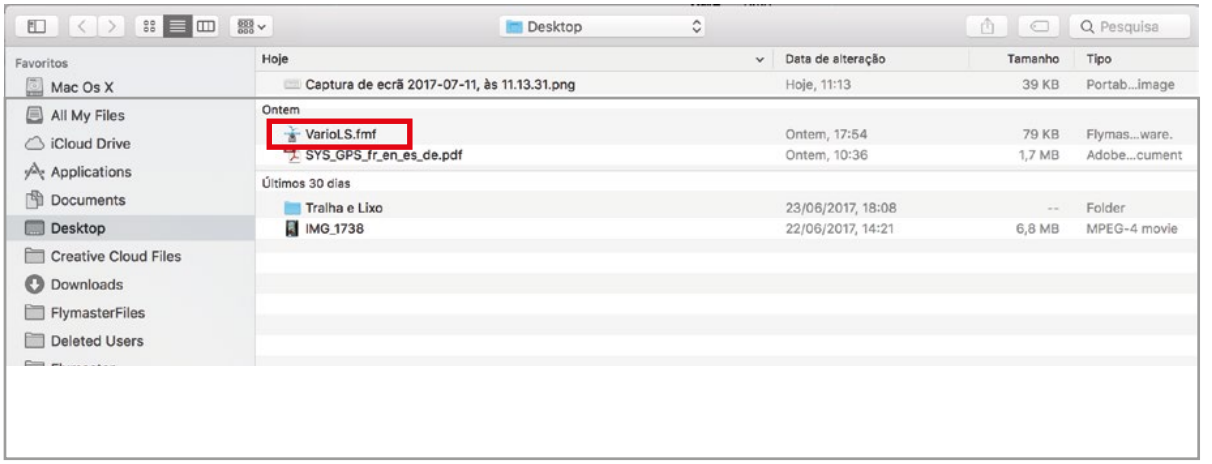
4.1. Firmware update

4. Choose the firmware file, that can be downloaded at:
https://www.flymaster.net/downloads?product=Vario%20LS
on the tab: Downloads



5. The Vario LS shoud load the firmware and reboot.

5. Reset and Fail Safe mode

If for any reason your Vario LS becomes unresponsive or does not boot up, please try the following procedures.

1. Reset the Vario LS

Insert a paper clip into the reset hole and push it gently. **Do not use extreme force or use a sharp tip tool to do this operation.**

2 . Put the Vario LS into “fail safe” mode: keep the Power/Menu button pressed, while pressing the reset button. Keep the Power/Menu button pressed untill a counter is displayed on the screen. After the counter ends the Vario LS shoud display **“SAFE”** text on the graphic area. The firmware can now be installed by using manual update (chapter 4), or, exit the “fail safe mode”, pressing the reset button again.

6. Place and secure the Vario LS

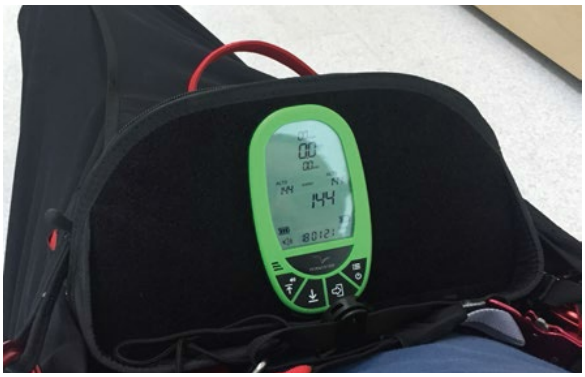
There are 4 recommended options to secure your VarioLS for flying. Remember to allways secure the Vario LS with the supplied safety lanyard.

1. On the riser

Using the supplied velcro piece

2. On the cockpit

No accesory needed



3. On the harness

Using the optional arness adapter

4. On the leg

Using the optional leg strap

7. Battery

Charging the Vario LS

1. Use the supplied USB magnetic cable

2. Use any 5V USB charger with at least 1A output. The Vario LS also charges when connected to a computer.

3. **When the Vario LS is OFF** and connected to the power source the display shows the message "**CHRG**". When the battery is fully charged the display shows the message "**FULL**". If the Vario LS detects some problem with the battery the display shows the message "BAD", this can be caused by trying to charge the instrument in an excessively hot environment.

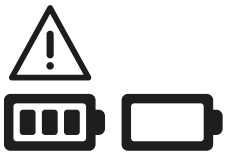
When the Vario LS is ON the two battery symbols show an animation, informing that the battery is being charged.

Battery Status:

The right-hand side battery status symbol shows the battery status.

The Left-hand side battery status symbol shows the reserve power status.

About 60 hrs.
Flight time*



Remaining less than 11 hrs flight time. The battery should be recharged the as soon as possible*.

*These are estimated durations. External factors such as temperature and natural ageing of the battery may affect these durations.

8. Basic settings

Basic settings for a quick start:

Setting the time and date: Press **Power/Menu** key, press **UP** or **DOWN** key until **TIME** or **DATE** appears on the display. Press **ENTER** to start the setup , and change the values with **UP** and **DOWN** keys. Press **ENTER** to confirm. Press **MENU** to exit to main menu and again to return to the flight page.

Time and flight duration: After a flight is started, the time (clock) and the flight duration are displayed alternately.

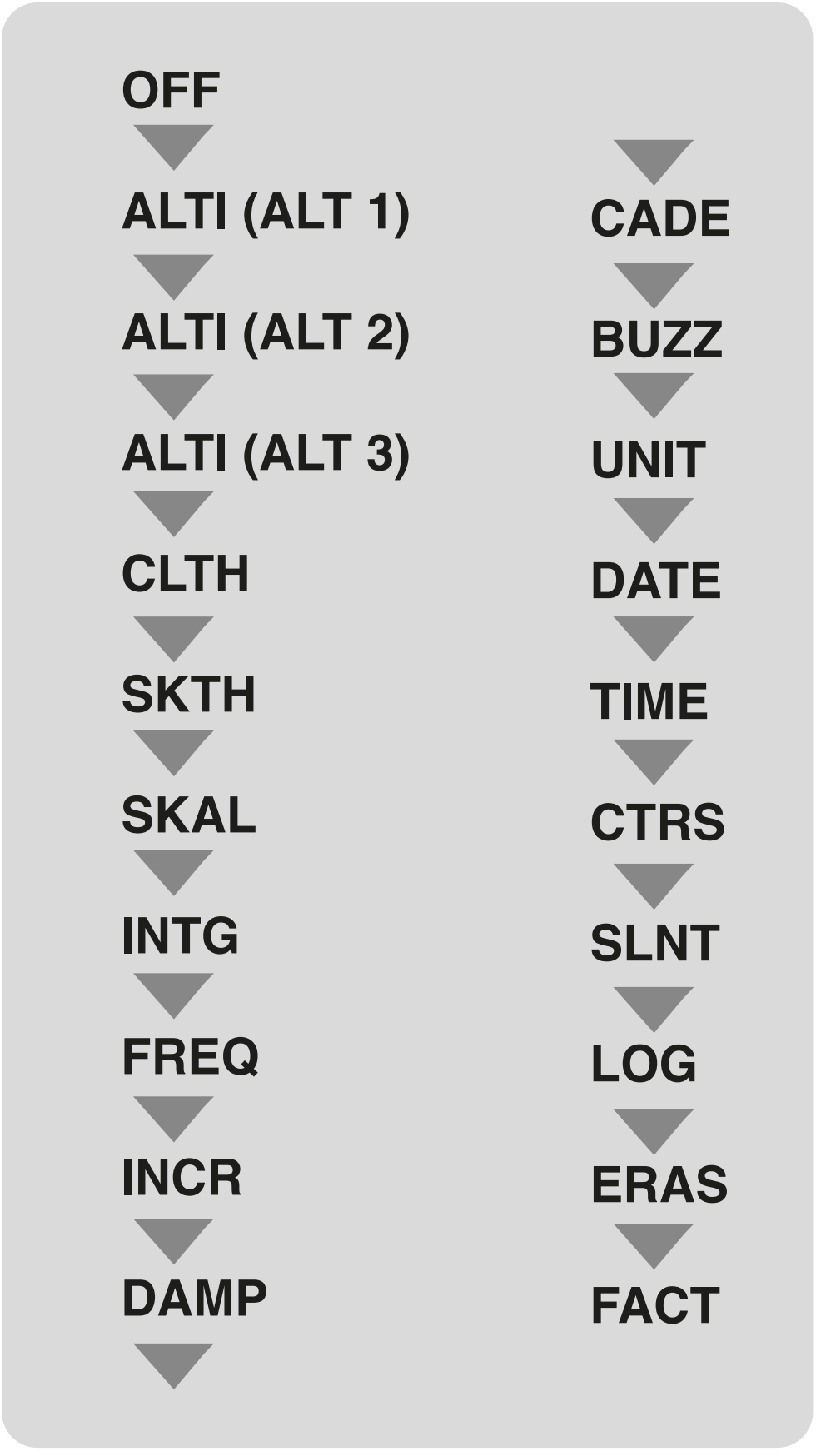
Setting the altimeters: Press **Power/Menu** key, press **UP** or **DOWN** key until **ALTI** appears on the display. Pressing **UP** or **DOWN** will change between **ALT1, ALT2 or ALT3**. Press **ENTER** to edit any of the selected altimeter, use **UP** or **DOWN** to change the values. Press **ENTER** to accept the value. Press **MENU** to exit to main menu or to the flight page

Changing units : Press **Power/Menu** key, press **UP** or **DOWN** key until **UNIT** appears on the display. Press **ENTER** to edit the units. Use **UP** and **DOWN** keys to change value between meter/ms and feet/ftminx100 and press **ENTER** to accept. Press **MENU** to exit to main menu or to the flight page.

Adjust the speaker volume : On the main screen, press up/volume key to change the speaker volume, each press selects a louder volume level, when the maximum volume is reached pressing it again will mute the speaker and restart the process.

Restore the VarioLS to factory defaults: Press **Power/Menu** key, press **UP** or **DOWN** key until **FACT** appears on the display. Press **ENTER**, select **YES** with the **UP** or **DOWN** key. Press **ENTER** to restore to factory defaults. Press **MENU** to exit to main menu or to the flight page.

9. Menu sequence



10. Advanced settings

OFF - Turns the Vario LS OFF

ALTI (ALT 1) - Altimeter 1

ALTI (ALT 2) - Altimeter 2

ALTI (ALT 3) - Altimeter 3

CLTH - The Climb Threshold defines the rate of climb at which the vario will start beeping. The frequency of the first beep is defined through the Base Frequency parameter,and steadily increases according the Increments parameter value.
The default value for Climb Threshold is 0.1m/s. This means that beeping starts once the instantaneous vario value goes above 0.1m/s.

SKTH - The Sink Threshold is the rate of descent at which the vario will emit a low frequency sound. Contrary to the climb sound the sink sound is continuous. The deeper the sink rate the lower the sound frequency.
Default value for this parameter is -2 m/s, we suggest setting a value lower than the natural sink rate of the glider when flying on speed bar in still air.

SKAL - The Sink Alarm defines a vertical speed value at which a sound (alarm siren) starts to be produced. For example, if the Sink Alarm is set to -10m/s, then if the instantaneous vario goes below -10m/s, and alarm will be fired. This alarm can be used to identify high vertical speeds, as for example, in a spiral dive. The Sink Alarm parameter can vary from 0 to -25m/s. Set the Sink Alarm to 0 (ZERO) to disable the alarm.

INTG - The Integrated vario is calculated by integrating the vertical speed during a period of X seconds defined by this value.

10.1. Advanced settings

FREQ - The audio frequencies can be adjusted to match the user's preference, by setting the Base Frq and Increments.
The Base Frq is the first frequency used to produce the initial sound which corresponds to the climb threshold (by default 0.1 m/s). Later, as the climb rate increases, a bip, bip sound is produced for which the cadence, and frequency, also increase. The Base Frq can be set from 500 to 1500 Hz. The higher is the frequency value, the higher pitched the sound is. The preset value for Base Frq is 700 Hz.

INCR - The Increments parameter sets the frequency increment for each 0.1 m/s climb rate increase. The increments can be set from 1 to 99 Hz. The preset value for Increments is 10 Hz. Considering an Increments value of 10, and Base Frq of 700 Hz, the vario frequency at 1 m/s is 800 Hz.

DAMP - The Vario LS vertical speed calculation is based on air pressure variations. It is very seldom to have air pressure absolutely stable. Turbulence caused by air moving near the sensor is suficient to cause small variations in pressure. For this reason the Vario LS filters (averages) the pressure data to prevent constantly detecting tiny pressure variations. The value that defines how must the pressure is filtered is the Damper. Setting a lower damper value caused the Vario LS to become more responsive but harsher. Inversely a higher value causes the Vario LS to be less responsive but smoother. The default value is 8.

CADE - When a rate of climb is higher than that specified by the Climb threshold the Vario LS creates a beeping sound. The rate (cadence) of the beeps increases as the climb rate increases. This increase in rate is not linear. The cadence parameter species which cadence curve should be used.

10.2. Advanced settings

BUZZ - Is so called because of the sound it emits, which resembles a buzzing sound.
The buzzer sound is produced when the rate of climb is close to, but has not yet reached the specified Climb threshold (see 13.3.1). This value is set between 0 and 9 with each unit corresponding to be 0.1 m/s, ie. 3 is 0.3m/s. Subtracting this decimal value from the climb threshold will give us the value at which the Vario LS will start buzzing.
For example with the Vario LS default values, Climb threshold=0.1m/s, and Buzzer=3 (0.3m/s) the buzzing with start at -0.2m/s because 0.1 - 0.3= -0.2. In this case at 0.1m/s directly below the Climb threshold the Vario LS will emit a constant sound varying rapidly in pitch from around 100hz to the set base frequency at which the first beep is emitted. This is the buzzer sound and may resemble a growl noise. Setting the Buzzer value to 0 (zero) will disable the buzzer feature.
Although the Buzzer will sound very annoying on the ground it becomes an amazing companion in flight allowing the pilot to pick-up thermals he would have usually missed.
UNIT - Sets the Vario LS units to: meter and m/s or feet and f/min x100.
DATE - Sets the the date of the Vario LS
TIME - Sets the clock of the Vario LS
CTRS - Sets the contrast of the display.
SLTN - Setting Auto silent option ON will keep the Vario LS 's sound quiet until a Start Flight has been detected. This function avoids listening the vario sound while waiting to take off. The audio will then be kept active until the VARIO LS is switched off. The default value for the auto silent parameter is ON.
LOG - Shows the recorded flights into the Vario LS internal memory.
FACT- Restore al the values to factory defaults.

11. Flights log

To see your flights log:

- Press **MENU**, then press **UP** or **DOWN** key untill you see **“LOG”** on the display.

Use the **UP** key or **DOWN** key to scroll between the flights.

* The flight start time, flight duration and flight date are shown in sequence

11.1 Flights log

Erase single flight from flights log:

- Press **MENU**, then press **UP** or **DOWN** key untill you see **“LOG”** on the display.

Press **ENTER** to enter the **LOG**.

Use the **UP** key or **DOWN** key to scroll between the flights.

Press enter in the logged flight you want to delete, and **DEL** will appear on the display, with the word **NO** on the **ALT1 field.**

Use the **UP** or **DOWN** key to select **YES.**

Press **ENTER** to confirm.

The flight is now erased from the **LOG.**

Press **MENU** to go back.

11.2 Flights log

Erase all flights at once from flights log:

- Press **MENU**, then press **UP** or **DOWN** key untill you see **“ERAS”** on the display.

Press **ENTER** to select erase funcion.

The word **NO** will appear on the display on the **ALT1** field.

Use **UP** or **DOWN** key to change it to **YES**.

Press **ENTER** to confirm.

The word **WAIT** will appear during the erase process.

Press **MENU** to go back.

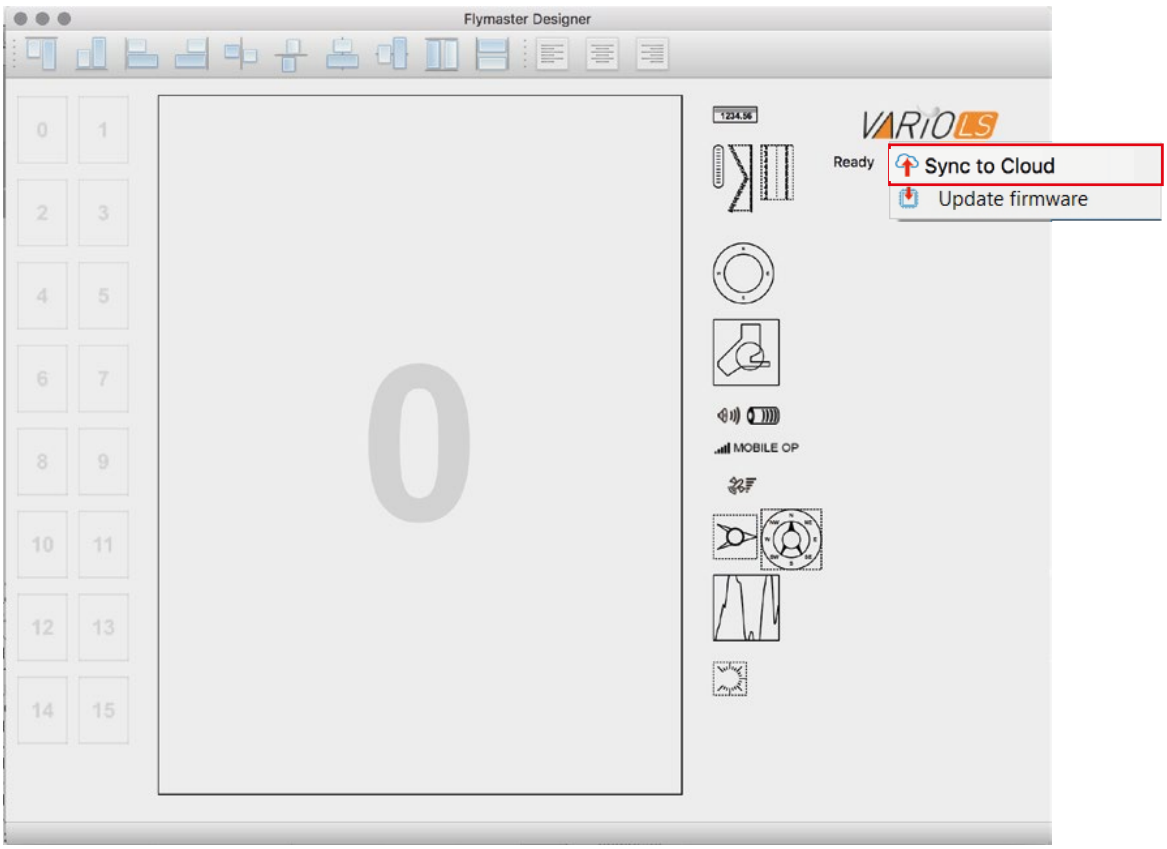
12 Downloading flights

Dowloading flights from the Vario LS:

1. Be sure you have a Flymaster account and you intrument is registered in your account. (Chapter 3)

2. Turn ON you Vario LS, and connect it to the Designer software.

3. Click on Vario Ls logo and “Sync to Cloud”

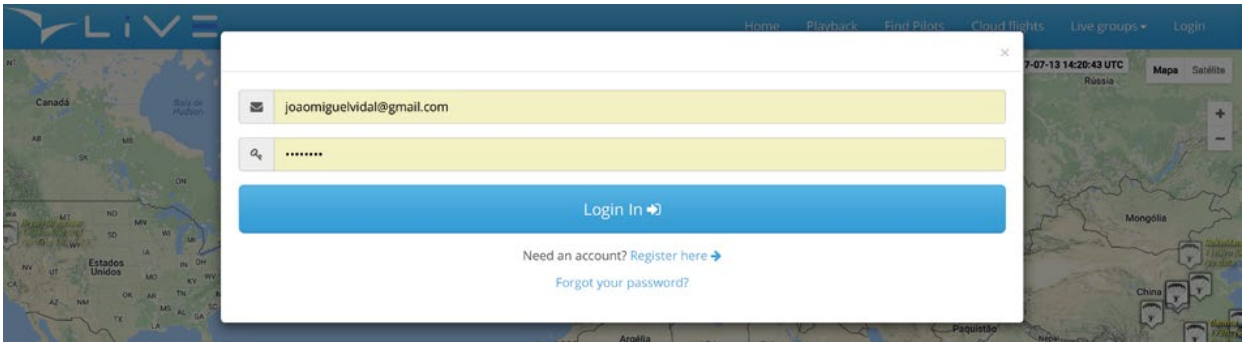


4. If there is a new flight not yet sync’d with your account the Designer will send it to Cloud Flights.

12.1 Downloading flights

5. Go to www.flymaster.net and click on “Flights” - “Cloud flights”

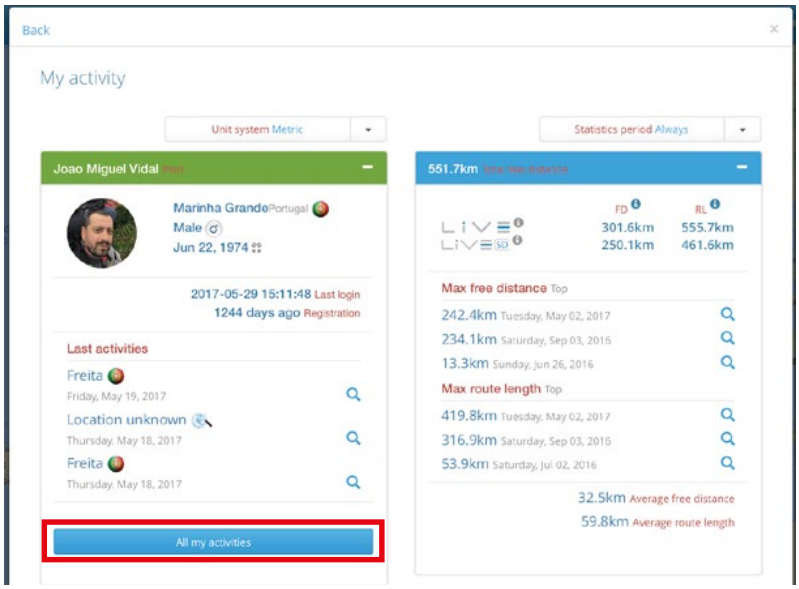
6. Log into your account



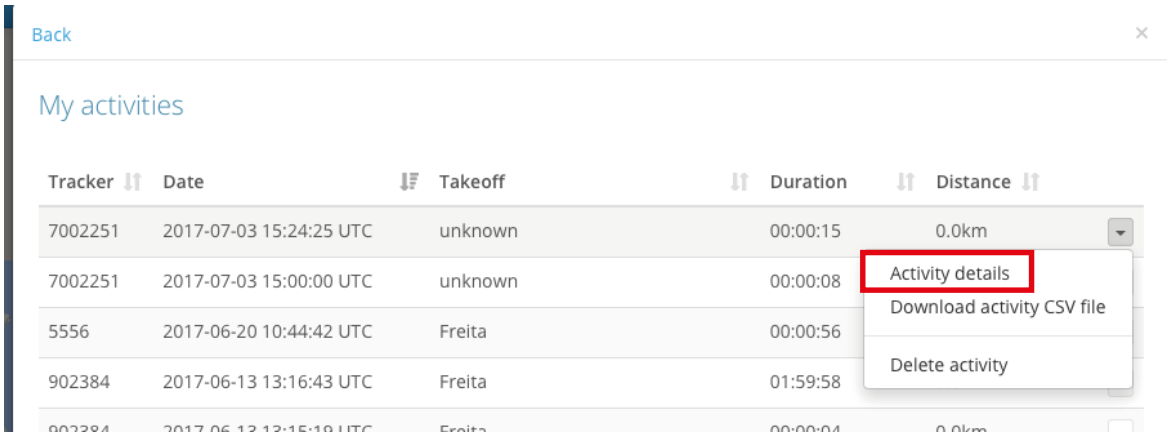
7. Go to “my activity”

12.2 Downloading flights

5. In your activity resume, click on " All my activities"

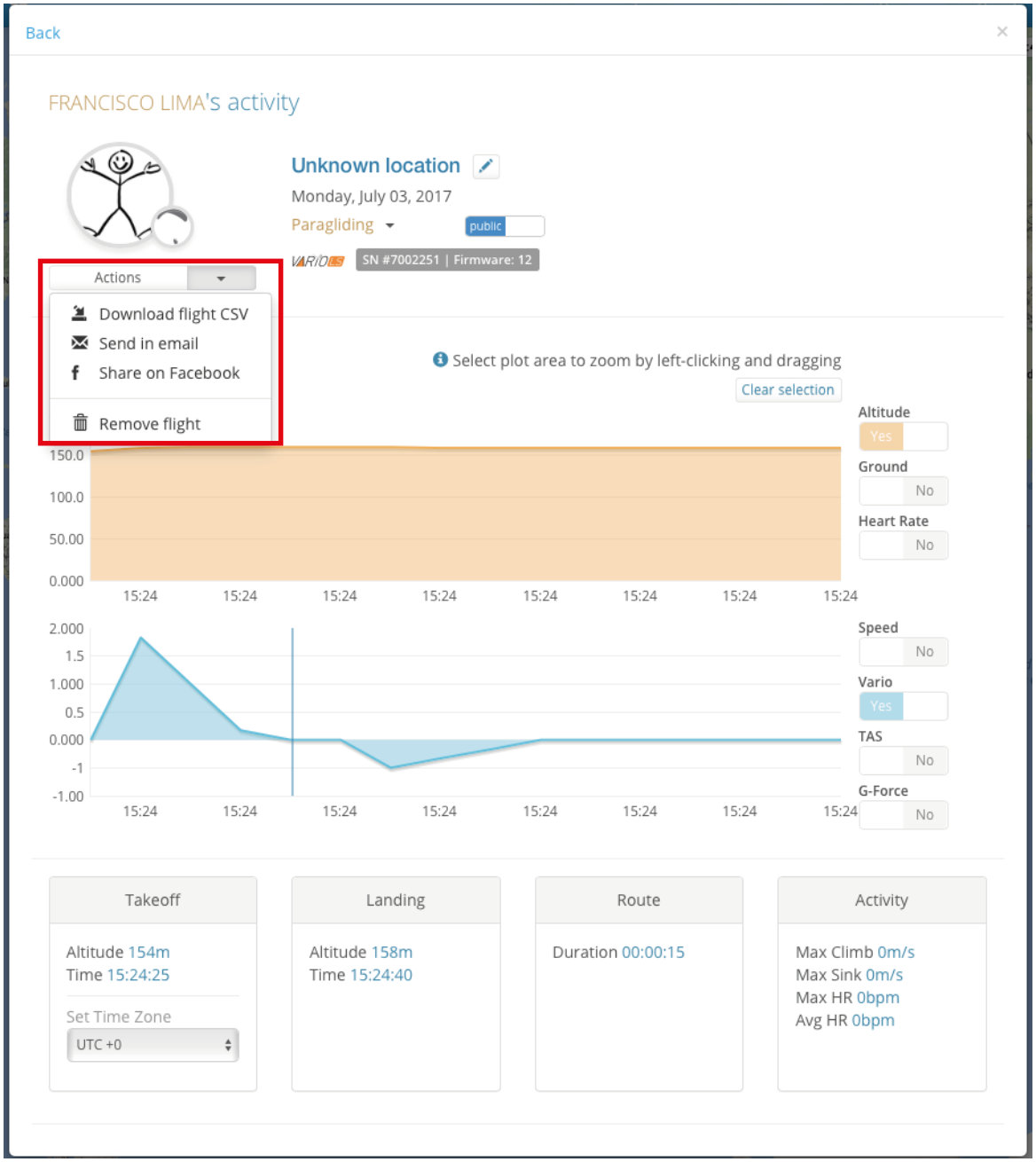


6. Click in "activity details" to choose the flight you want to analyse or download,



12.3 Downloading flights

7. Here you can see the flight details.
It's possible to download it CSV file, send it by email, share it in Facebook or delete it from your flights list.



13. Important notes

Warnings:
Take care of your instrument by cleaning regularly. Do not open the Vario LS, doing this will void your guarantee. Do not expose your Vario LS to extreme temperatures, high or low, this will permanently damage it. Avoid leaving fully exposed to the sun, or in temperatures bellow -10°C.
Ensure that the product is well in position before taking off. Flymaster cannot be held responsible for the loss of the product during the flight (takeoff included).

Battery
This product uses a lithium-ion battery. Do not expose to temperatures above 50 ° C (120 ° F). Risk of fire, explosion or burning. If leakage and contact with liquid leaking from the battery, clean thoroughly with water and seek medical advice immediately. For safety reasons and to extend battery life, charging can be done in an ambient temperature range.
Temperatures: Standard operation: 0 ° C (32 ° F) to +45 ° C (113 ° F) short-term storage: -20 ° C (-4 ° F) at 60 ° C (140 ° F) Storage long term -20 ° C (-4 ° F) at 25 ° C (77 ° F).
Do not check out, or do not attempt to remove the battery, which is not user replaceable. If battery problem, please contact Flymaster support.

Notice to users regarding collection and disposal of batteries and electrical and electronic equipment.
LITHIUM-ION BATTERY AND ELECTRONIC CIRCUIT IN THIS PRODUCT CAN NOT BE ADDED TO THE HOUSEHOLD WASTE. To allow proper recycling, please bring it to a collection point for.
Directive 2002/96/EC applies within the European Union. For the procedure applicable in countries outside the European Union, please check with local authorities
DO NOT ATTEMPT RECHARGING THE DEVICE WITH A DIFFERENT USB CORD THAN THE ONE PROVIDED. RATING : 5VDC 500mA.

CE Mark
This product meets the requirements of the CE mark as part of a residential, commercial or light industrial.
About this document
The greatest care was taken in the preparation of this document. However, due to the commercial development of the product, some information may not be quite up to date. The information in this document is subject to change without notice. Flymaster is not responsible for any omissions or technical or editorial errors in this manual, in the event of incidental or consequential damages resulting from the content or use of this document.

Flymaster Avionics, Lda.
Centro Empresarial e Tecnológico
R. de Fundões, 151, 3700-121 S. João da Madeira, Portugal
Tel: + 351 256 001 935 Fax: + 351 256 880 551
sales@flymaster-avionics.com

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