

Manual for Element Track

version 1.04.17

Last modified 30/07/2017

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Part



1 Introduction

Element Track version 1.04.17

Company Flytec by Naviter is dedicated to solve soaring pilot's problems and Element Track is surely one of the result on this challenge. Mainly Element Track is helping para-glider and hang glider pilots navigate during leisure, cross country and competition flights.

Element Track is robust and reliable vario. For this reason it has a big screen, excellent vario and a great battery autonomy, which offers more than 30 hours of flying. You can literally take your Element Track out of the box and just use it!

Naviter is a Slovenian based company. Our focus is on highly featured and "easy to use" software and hardware which is suitable for beginners, recreational and pro soaring pilots. What we are interested in are the needs of paraglider, hang glider and sailplane pilots worldwide.

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1.1 In the Box

The Element Track is delivered with pre-installed Element Track software. Your Element Track was delivered in a package with the following items:

1. Element Track
2. Protective case
3. Getting started manual
4. USB cable

Part



2 General

- [Getting started](#)^[4]: General information on your Element Track, such as switching on/off, batteries and handling
- [Software updates](#)^[6]: How to update the software on the Element Track
- [USB connection](#)^[9]: Getting data (such as waypoint files and flight records) onto and off the Element Track
- [Technical notes](#)^[10]: Taking care of your Element Track

2.1 Getting started

This topic wants to cover some of the basic things you need to know about how to use your Element Track. If this is the first time you are using Element Track please take a few moments to read about the basics about how to use Element Track:

- [Switching Element Track on and off](#)^[4]
- [Batteries](#)^[5]
- [Setting a language](#)^[5]
- [Keypad functions](#)^[5]

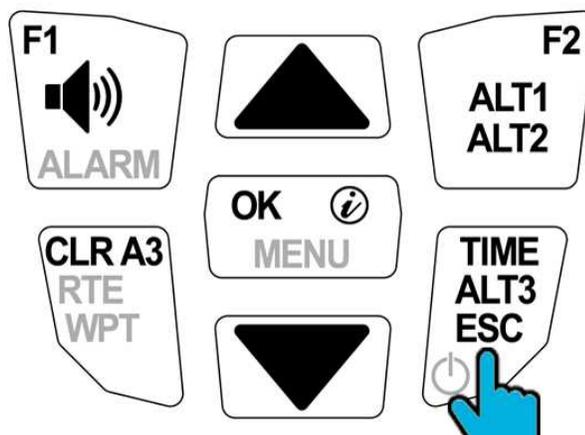
2.1.1 Switching Element Track on and off

Switching on

1. Press and hold the on/off key.
2. Confirm On? with OK.
3. Cancel with ESC.

Switching off

1. Press and hold the on/off key.
2. Confirm Off? with OK.
3. Cancel with ESC.



Press and hold to switch on or off.

2.1.2 Batteries

The Element Track comes with two standard AA batteries, which are inserted on the back of the instrument. The instrument warns you, when the charge level drops below 30 %. See the [Technical notes](#)¹⁰ for information on re-chargeable batteries.



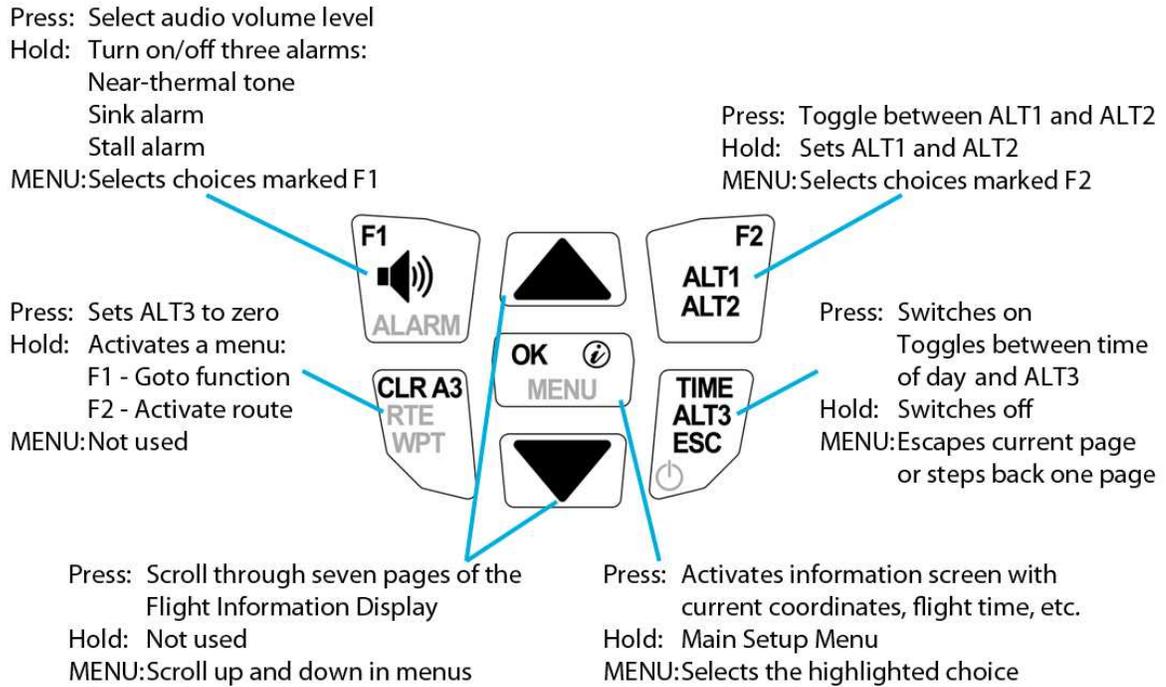
Battery compartment.

2.1.3 Setting a language

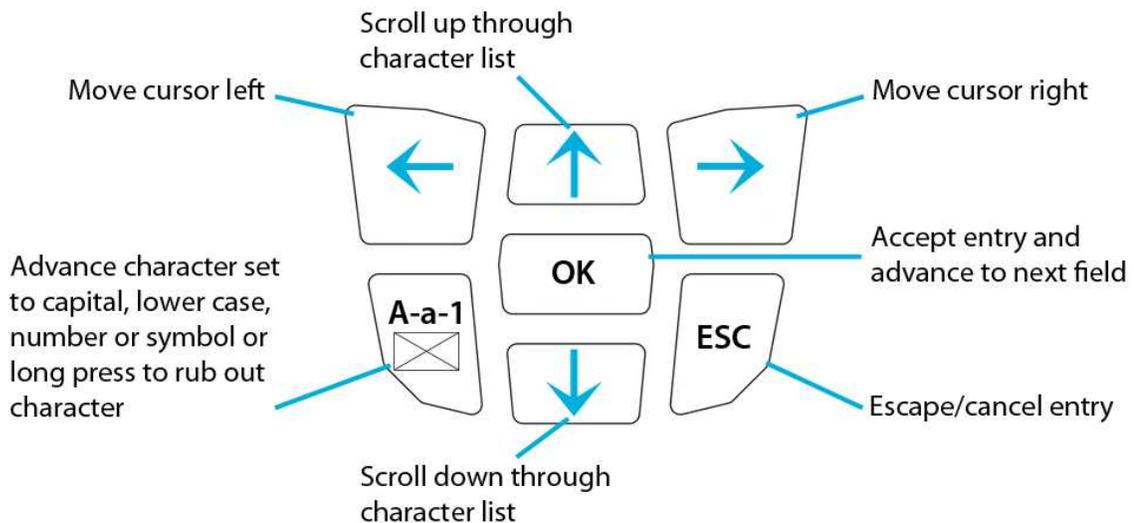
1. Press and hold MENU .
2. Use the arrow keys to find Instrument settings.
3. Use the arrow keys to find Language.
4. Select your preferred language by pressing OK.

2.1.4 Keypad functions

The following two diagrams show the functions of the keypad. The second diagram for text entry is needed for example when entering the pilot's name.



Keyboard functions.



Text entry.

2.2 Software updates

How to update the software on the Element:

- [Identifying the current software version](#)^[7]
- [Installing a firmware update](#)^[7]

2.2.1 Identifying the current software version

Flytec_{by Naviter} will periodically issue firmware updates for the Element Track to improve its functionality and offer new features. It is important to upgrade to the latest firmware version. The current version of your software is indicated, when starting up your Element Track. If the vario is switched on, you can check your version as follows:

1. Press and hold MENU then use the arrow keys to navigate to factory settings. Press OK.
2. Use the arrows and choose serial number. Press OK.
3. What you see displayed is the first line of the firmware version, below is the serial number of your Elements (S/N) as well as an internal identifier.

Note: Your Element Track consumes battery power when in USB mode (see [USB connection](#)). Do not leave it connected to your computer for an extended period of time or you will drain your battery.

Note: be sure you have fresh batteries before installing new firmware! If your Element Track runs out of battery power while it is updating its firmware, it may not work properly.

2.2.2 Installing a firmware update

When you connect your Element Track to a computer it will appear as an external hard drive. On this drive you find the programme "Element Update". Open the programme and it will establish a connection with our server to search for new software. The programme takes you automatically through the update process. A green tick appears for all completed steps. If there is no update available for your Element, the screen will show a green bar as depicted below.



Update app on Element Track drive



Installing a firmware update before software version 1.3.10

Learn how to transfer data via USB cable (see [USB connection](#)) between the Element Track and a computer. When you connect it to your computer it will appear as an external hard drive. Download the new firmware from the Element Track website, then connect your Element Track, and drag-and-drop the UPG file into the folder named update.

1. Switch off your Element Track.
2. Connect the Element Track to your computer with the USB cable.
3. Open the drive labelled ELEMENT on your computer.
4. Open the folder named update.
5. Drag-and-drop the UPG file from your desktop into the folder update.
6. Click Eject or Disconnect Safely before disconnecting your Element Track.
7. Switch on your Element Track.
8. Confirm Update? by pressing OK.

Note: Always choose "Eject" on a Mac or "Disconnect Safely" on a PC before disconnecting your Element Track.

Your Element Track will read the new firmware and automatically update itself. Note that this could take a few minutes. The firmware file remains in the update folder after the update, but its ending changes from .upg to _pg. If you change the ending back to .upg, your Element Track will offer to install it again the next time you switch it on. If multiple files with the ending .upg exist in the update folder, the Element Track will automatically choose only the newest one.

Error messages

When updating the software of your Element Track, you may get one of five error messages.

- *Error 1:* There is no update file. Go through the procedure above and try again.
- *Error 2:* The update file is corrupt. Go through the procedure above and try again.
- *Error 3:* There is more than one valid update file. Check the contents of your update folder and

ensure there is only one file ending in .upg

- *Error 4*: An error occurred in the Element Track's sub-processor. Try again and if it keeps failing, contact Flytec_{by Naviter}.
- *Error 5*: An error occurred in the Element Track's main processor. Try again and if it keeps failing, contact Flytec_{by Naviter}.

2.3 USB connection

Your Element Track works like a USB stick - plug it into your PC or Mac and the drive ELEMENT appears on your computer.

1. Switch off your Element Track.
2. Connect the Element to your computer with the USB cable.
3. Open the drive labelled ELEMENT on your computer.
4. The below list of folders appears on your computer.
5. Eject/safely remove the Element Track, before unplugging the USB cable

- *config*: Your configuration data is stored in this folder. You should normally not have to manipulate it.
- *flights*: This folder stores your IGC files, i.e. your recorded flights. You can drag and drop these files onto your computer and view them in your personal flight log.
- *system*: A log of your instrument's activities is kept on your Element Track. We might occasionally ask you to send us your log file for trouble shooting.
- *updates*: This is the folder in which update files are saved, if a software update is available (see [Software updates](#) ^[6]).
- *waypoints*: Stores your waypoint files.



ELEMENT drive on your computer



Folder structure on your computer

Note: Your Element Track consumes battery power when in USB mode. Do not leave it connected to your computer for an extended period of time or you will drain your battery.

Note: Always choose "Eject" on a Mac or "Disconnect Safely" on a PC before disconnecting your

Element Track.

Note: If you accidentally delete an IGC file from your Element Track while it's in USB mode, don't worry. You can recreate the file by manually exporting a flight (see chapter [Manually exporting flights](#) ^[60]).

2.4 Technical notes

Taking care of your Element Track.

2.4.1 Batteries

Your Element Track comes with two AA alkaline batteries. Battery life in normal use should last around 30 hours. If you store your Element Track for long periods of time, remove the batteries to prevent corrosion.

If you choose to power your Element Track with NiMH rechargeable batteries, it is important to configure the power supply setting on the device.

1. Press and hold MENU, then use the arrow keys to scroll to Instrumental settings.
2. Press OK.
3. Use the arrows to select Battery type and press OK.
4. Select NiMH 2.1Ah using the arrow keys. Press OK.
5. Press ESC to return to the Main Setup Menu.

Note: We do not recommend using NiCad rechargeable batteries in the Element Track.

2.4.2 Maintenance

The Element Track is a sensitive instrument—handle it gently. Always store it in its cloth bag when not in use, and only wipe it clean with a soft, damp cloth. Never expose the Element Track to extreme temperatures, water, or mechanical force.

2.4.3 Reboot

In the event your Element Track locks up, you may perform a hard reboot by removing the batteries for 5 minutes before replacing them and restarting the device.

2.4.4 If exposed to water

The Element Track is not water resistant! Exposure to water or any other liquid will cause serious damage. In case your Element Track gets wet, remove the batteries immediately to prevent more damage. If your Element Track was exposed to salt water, rinse it in warm, clean, fresh water. Dry your Element Track thoroughly and return it to your vendor or directly to Naviter for servicing.

2.4.5 Warranty

Naviter provides a 2-year warranty on your Element Track, and we encourage you to contact us via our website any time for support. After your warranty has expired we will still repair your Element Track at a reasonable charge.

For more details see also:

[Limited Warranty](#) ^[82]

2.4.6 Technical support

Direct all inquiries to your vendor, or directly to Naviter via our website www.naviter.com or via e-mail on support@naviter.com.

If you need access to your serial number (S/N) or software version follow these steps:

1. Press and hold MENU.
2. Use the arrow keys to scroll to Factory settings, press OK.
3. Use the arrow keys to scroll to Serial number, press OK.

Part



3 Planning a flight

To plan your flight check:

- [Airspace resources](#)^[13]: Sources for airspace files
- [Route planning](#)^[14]: Preparing coordinates for waypoints and routes

3.1 Airspace resources

To upload airspaces on your Element Track follow the following chapters:

- [OpenAir format for Connect 1 and Element Track](#)^[13]
- [UK airspaces](#)^[13]

3.1.1 OpenAir format for Connect 1 and Element Track

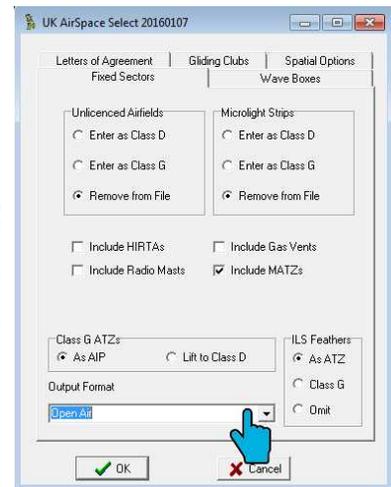
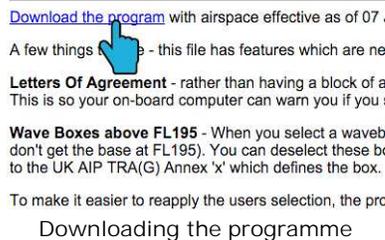
The Element Track currently reads airspace files in OpenAir format. To download these files we recommend Soaringweb. After clicking on your region and country, you are presented with a number of formats to download. Choose OpenAir format as shown below. In order to load airspaces onto your vario, you need to connect the vario to a computer Data management|via USB, drop the files in the folder "airspaces" and then select an airspace file to be displayed on the Element Track.



OpenAir files on Soaringweb

3.1.2 UK airspaces

Unfortunately downloading the OpenAir files from SoaringWeb doesn't work for the UK. You have to download the ASSelect programme as shown below. When generating your file with the programme, make sure you select the OpenAir format at the very end. The programme seems to be available for Windows only.



Saving as OpenAir file

3.2 Route planning

The Element Track save geographic points in a list of waypoints. You can either navigate to waypoints individually (“Goto”) or combine several waypoints into a route and fly through those in sequence. Find out more about [Entering and selecting waypoints](#)^[25] and [Routes](#)^[28]. This page shows you how to create a file containing waypoints, which you can then upload onto your vario. In order to convert already existing waypoints files into formats compatible with the Element Track, we recommend SeeYou.

In the Element Track, the waypoint list has a capacity of 350 waypoints. A route can encompass up to 50 waypoints. First, you will need navigation data. You can get this from your mentor or another pilot, or you can use mapping software to generate your own information. For this tutorial you will use:

- [SeeYou](#)^[14] software or
- [XC Planner](#)^[15] online tool.

3.2.1 SeeYou

SeeYou is flight analysis and planning software.

It combines powerful features with intuitive interface. Comprehensive statistics, free vector maps, direct communication with flight recorders and numerous other functions which make SeeYou an essential tool for glider pilots and competition organizers.



Plan a flight with preset waypoints

Planning flights is important for everyone who is trying to maximize the weather conditions. SeeYou offers you a graphical tool to setup tasks.

1. To start planning flights, open the Tasks window 
2. Select View > Map from the main menu to change view
3. To create a new task choose Edit > Add Task or the  icon
4. Click on the Start point, 1st Point, 2nd Point of your task in correct sequence
5. Finish adding waypoints by pressing ESC button once.

That's all, you have created a new task.

Plan a flight without preset waypoints

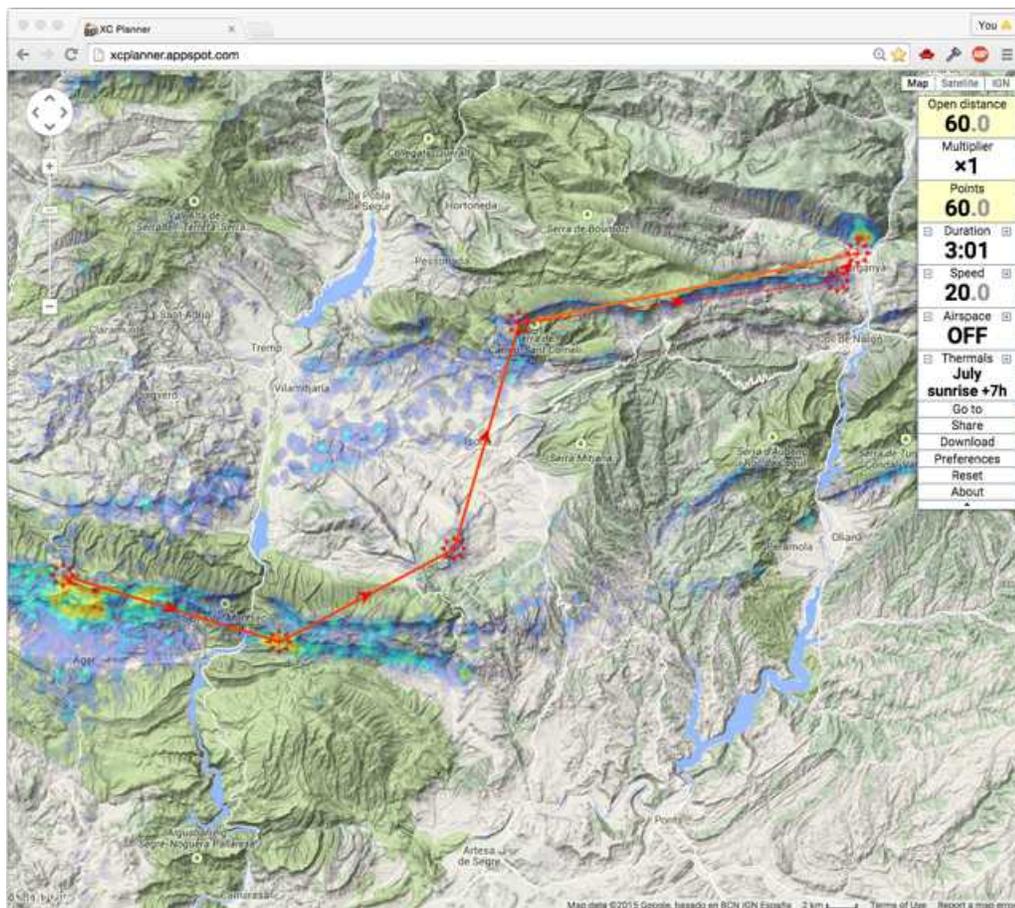
To create a task where its waypoints are not in the Waypoints database, press and hold the Shift key. Each click will create a new waypoint. New waypoints will have a name such as `_Point_123`. You can change the name and other properties of this point by clicking the mouse right button over it and selecting Edit Waypoint .

Now save the task to your Element Track

1. Connect your Element Track with computer via [USB connection](#)^[9]
2. Save waypoints and task to your Element Track by choosing File > Save as.. and
3. Save as *.cup file directly to your Element Track
4. See chapter [Entering and selecting waypoints](#)^[25] to learn how to use waypoints

3.2.2 XC Planner

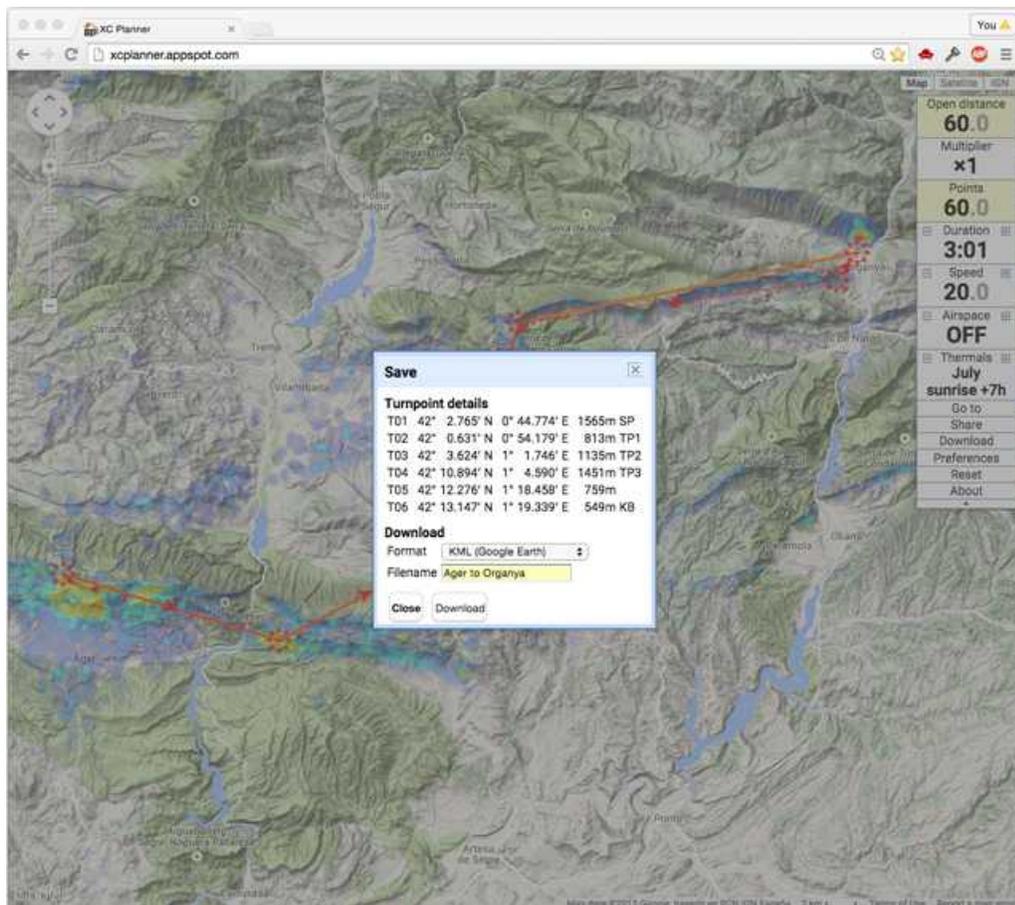
Drag the red line to position waypoints on the map. In XC Planner, right-clicking creates a new waypoint (Control+click on a Mac). Grabbing and dragging the midpoint of the red line also creates a new waypoint. Let's say you want to fly the classic route from Ager to Organyà, in Spain. You will drag the red line to connect likely thermal sources and soarable ridges along the route:



Planning a route in XC Planner

To generate coordinates for the waypoints along this route, click the box on the right, labelled Download. Save the waypoints as a file after clicking "Download". You can then drag-and-drop this file directly into your Element Track. To enter the information manually into the Element Track, see [Entering waypoints manually](#)^[25].

XC Planner generates the following list of coordinates for you:



Coordinates generated by XC Planner

WPO1 Ager take-off N 42°02.765 E 0°44.774 1565 m
 WPO2 Vilanova de M N 42°00.631 E 0°54.179 813 m
 WPO3 Knoll N 42°03.624 E 1°01.746 1135 m
 WPO4 Ridge N 42°10.894 E 1°04.590 1451 m
 WPO5 Santa Fe N 42°12.276 E 1°18.458 759 m
 WPO6 Organya N 42°13.147 E 1°19.339 549 m

Part



4 Flight preparation

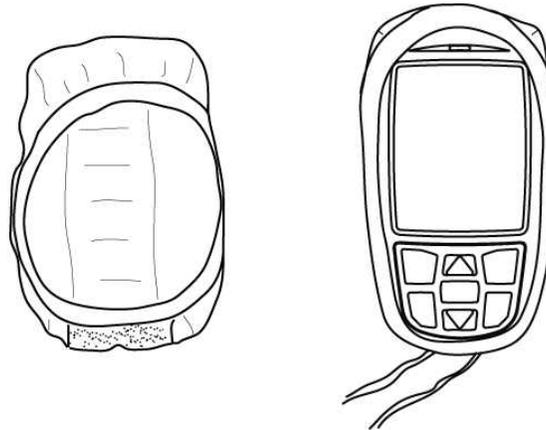
- [Mounting](#)^[18]: See how to mount your Element Track in various ways
- [Altimeters and altitude adjustment](#)^[22]: Altimeters and their adjustments before your take-off
- [Entering and selecting waypoints](#)^[25]: Entering waypoints into the Element Track, manually or from a file
- [Routes](#)^[28]: Setting and activating a route on the Element Track
- [Airspaces](#)^[29]: Activating airspace files on your Element

4.1 Mounting

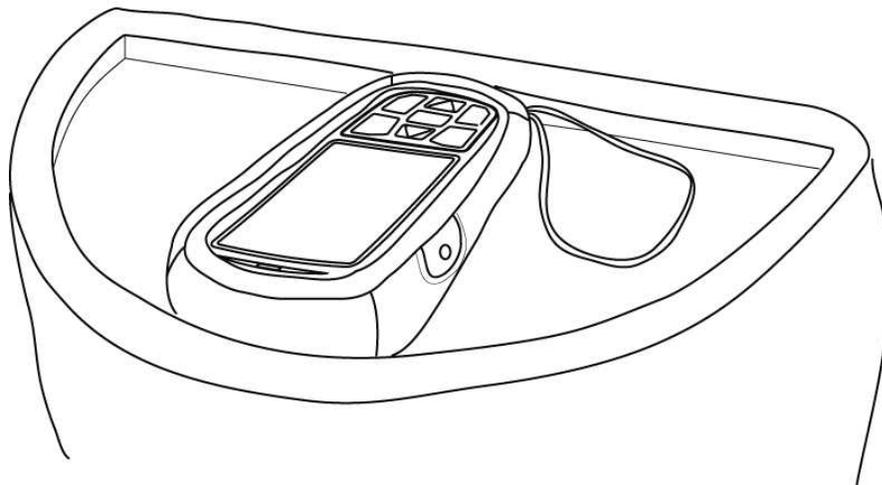
Four different types of mounting your Element Track:

- [Cockpit mount](#)^[19]
- [Harness mount](#)^[20]
- [Leg mount](#)^[21]
- [Hang glider mount](#)^[22]

4.1.1 Cockpit mount

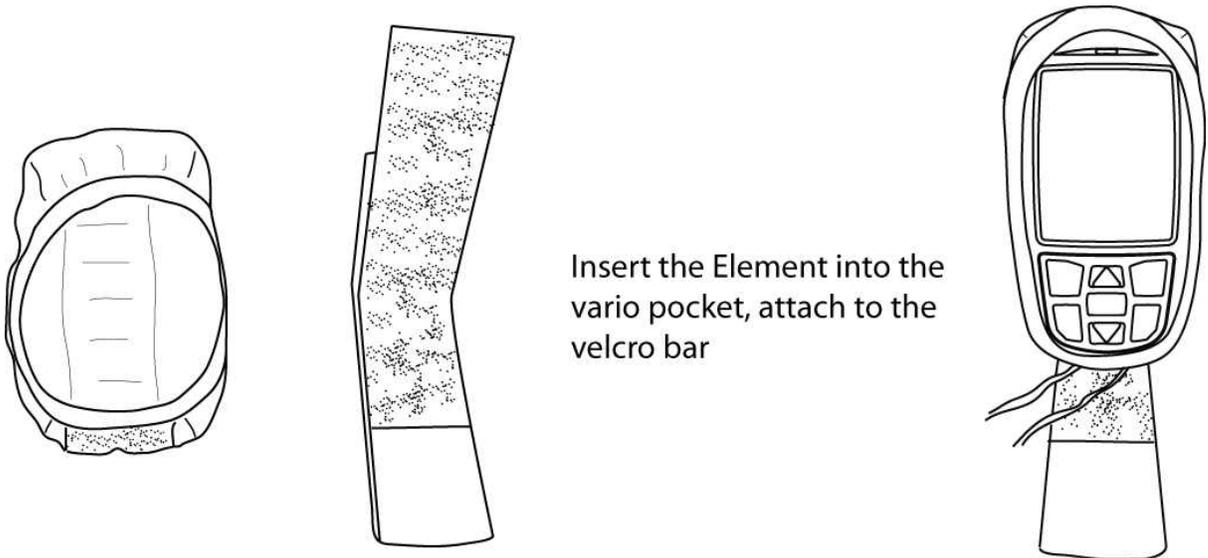


Insert the Element into the vario pocket, attach your cockpit and secure the Element's lanyard to the cockpit

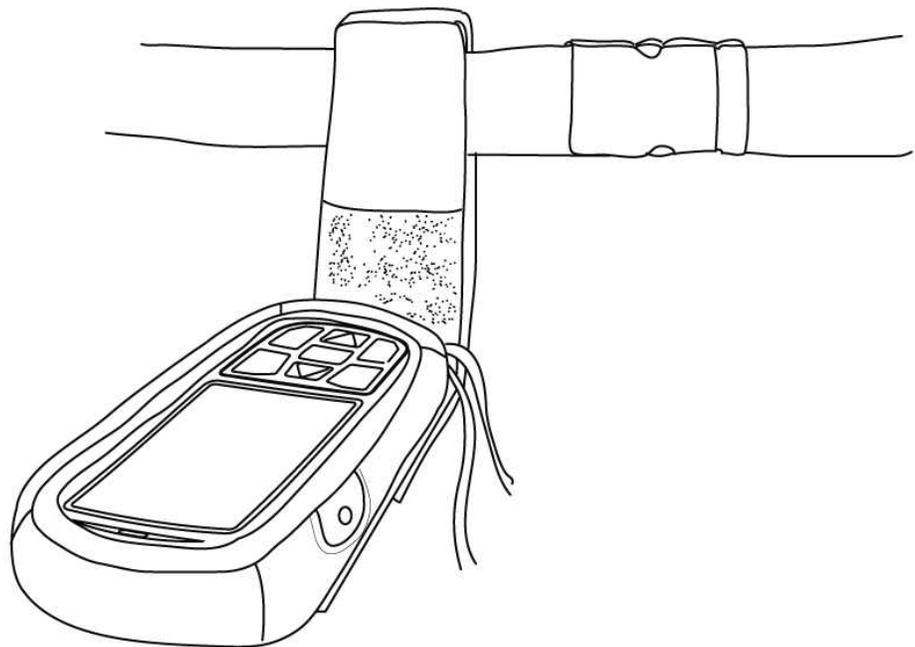


Cockpit mount.

4.1.2 Harness mount



Attach the velcro bar to your harness and secure the Element's lanyard to harness or velcro bar

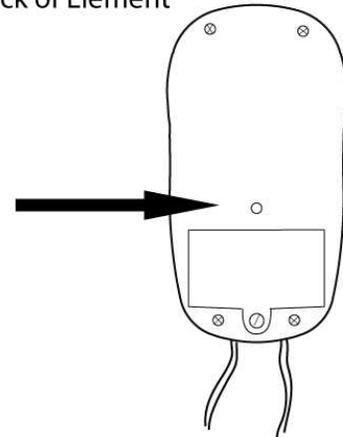
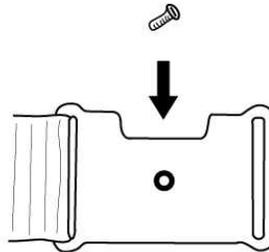
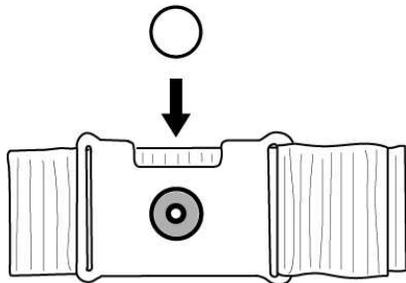


Harness mount.

4.1.3 Leg mount

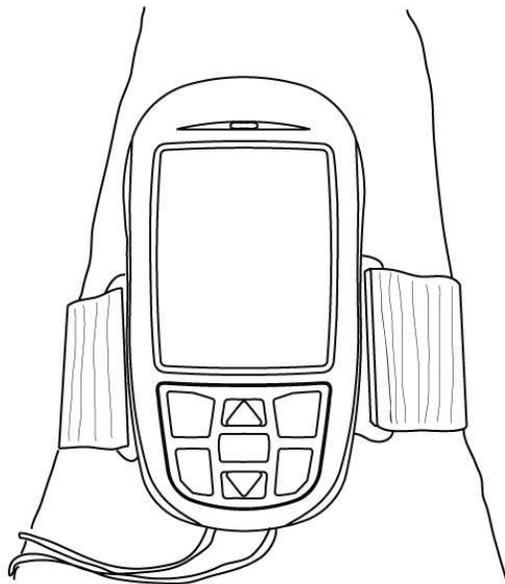
Front: insert rubber washer

Back: insert screw, attach to back of Element



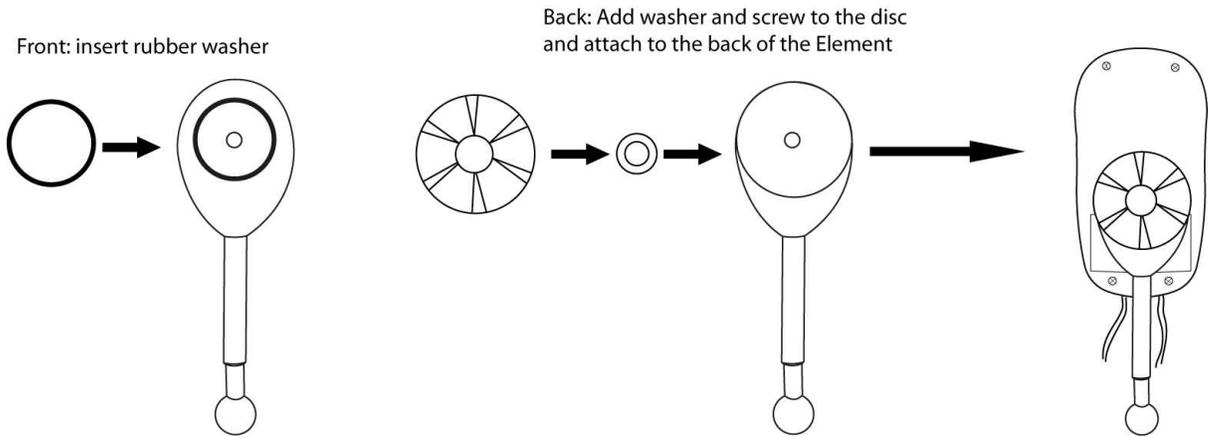
Attach strap to leg

Fix Element's lanyard to harness

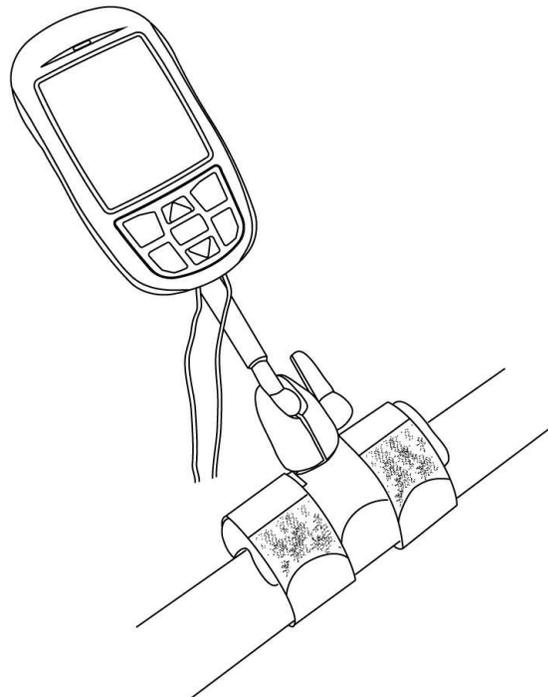


Leg mount.

4.1.4 Hang glider mount



Fix mount and safety lanyard to the control bar



Hang glider mount.

4.2 Altimeters and altitude adjustment

Check the following chapters concerning altitude adjustment:

- [Altimeters](#)^[22]
- [Absolute altitude](#)^[23]
- [Alternative altitude display](#)^[24]
- [Relative altitude](#)^[25]

4.2.1 Altimeters

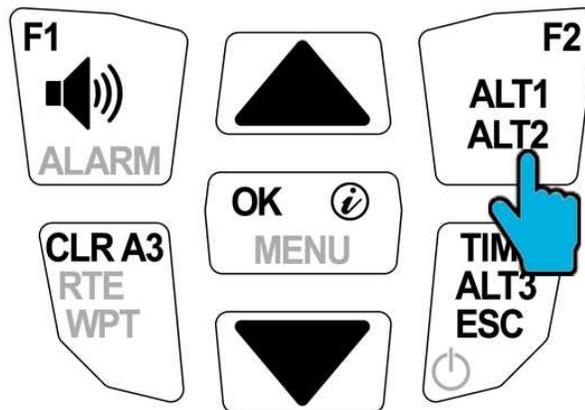
As any pilot knows, there are many different altitudes in aviation. The Element Track determines altitude using both GPS and barometric pressure, and its altitude display is customisable. You can

select among three altimeters called ALT1, ALT2, and ALT3, and you can manually set the sea level barometric pressure. We will use the following definitions when explaining the altimeter functions:

- *Absolute altitude* – height above mean sea level (MSL)
- *GPS altitude* – MSL altitude indicated by GPS satellites
- *Relative altitude* – height above a known point such as an airfield
- *AGL Altitude* – height over the terrain directly below (above ground level)
- *QNH* – the actual air pressure at sea level
- *Flight Level* – altitude MSL, in hundred feet intervals, relative to the ISA pressure setting of 1013.25 hPa. FL17, for example, indicates that you are in the 1700' band, between 1650' and 1750' MSL

4.2.2 Absolute altitude

ALT1 is your altitude above Mean Sea Level (MSL). Toggle between displaying ALT1 and ALT2 by pressing A1 / 2. ALT1 is automatically set to your GPS altitude as soon as the Element Track acquires a GPS signal. This altitude calibration means, of course, that the QNH pressure setting is also automatically adjusted.



Long press to access ALT1 adjustments, short press to toggle between ALT1 and ALT2.

You can manually adjust ALT1 by holding down ALT1 on your keyboard, which brings you into the ALT1 setting screen. There are three main reasons you might choose to adjust ALT1:

- If you DO know your present altitude, but you DO NOT know your QNH setting. For instance, you notice a sign posted at the take-off giving the actual MSL elevation of the ramp. In this case, you might adjust your ALT1 to match the sign. You will notice that adjusting the altitude setting will also cause a change the QNH pressure setting.
 1. Press and hold ALT1.
 2. Use the arrow keys to adjust ALT1 to the desired reading.
 3. Press OK.
- If you DO NOT know your present altitude, but you DO know your barometric pressure. Perhaps you have an aviation weather report giving the local QNH setting, or perhaps you have a setting from air traffic control. In either case you can change ALT1 to reflect this pressure setting.
 1. Press and hold ALT1.
 2. Use the arrows to adjust ALT1 until QNH matches the desired reading.
 3. Press OK.
- If you want to cancel an adjustment and return to either standard pressure setting or GPS altitude.

The F1 and F2 keys will allow you to quickly cancel any ALT1 adjustments and use a standard setting.

1. Press and hold ALT1.
 2. Press F1 to confirm the choice to set ALT1 to FL-Alt, MSL using standard atmospheric pressure.
- OR
1. Press F2 to confirm the choice to set ALT1 to GPS altitude.
 2. Press OK.

4.2.3 Alternative altitude display

Toggle between displaying ALT1 and ALT2 by pressing ALT1 / ALT2. When ALT2 is toggled, your Element Track will not necessarily display the label ALT2, instead it will indicate whichever ALT2 configuration is presently selected. You can configure ALT2 to show any of four different values using the Instrument Settings menu.

1. Press and hold MENU, then use the arrow keys to select Instrument settings.
2. Press OK.
3. Use the arrows to select Alt2 mode and press OK.
4. Then select your preferred ALT2 mode.
5. Press OK.
6. Press ESC to return to the Main Setup Menu.

These are the four available choices for ALT2:

- *GPS altitude*: (The label GPS appears beside the altitude reading.) Note that you cannot adjust ALT2 when you have selected this option. ALT2 will only display the current GPS altitude.
- *Flight Level*: (The label FL appears beside the altitude reading.) Note that you cannot adjust ALT2 when you have selected this option, because the Flight Level display is always based on a standard atmospheric pressure value of 1013.25 hPa.
- *ALT1 m/ft inverse*: (If ALT1 is displayed in metres, then ALT2 displays true altitude in feet. The label ALT1 remains beside the altitude reading but the units change.) Note that you can adjust this value. Adjusting ALT2 in this mode will automatically adjust ALT1 as well.
- *Relative altimeter*: (The label ALT2 appears beside the altitude reading. Note that you can adjust this value.

These are the available adjustments for ALT2:

- When in relative altimeter mode, you can rapidly reset the ALT2 relative altimeter to either your current GPS altitude or to zero by holding down the ALT2 key.
 1. Press and hold ALT2.
 2. Press F1 to set the relative altimeter ALT2 to 0.

OR

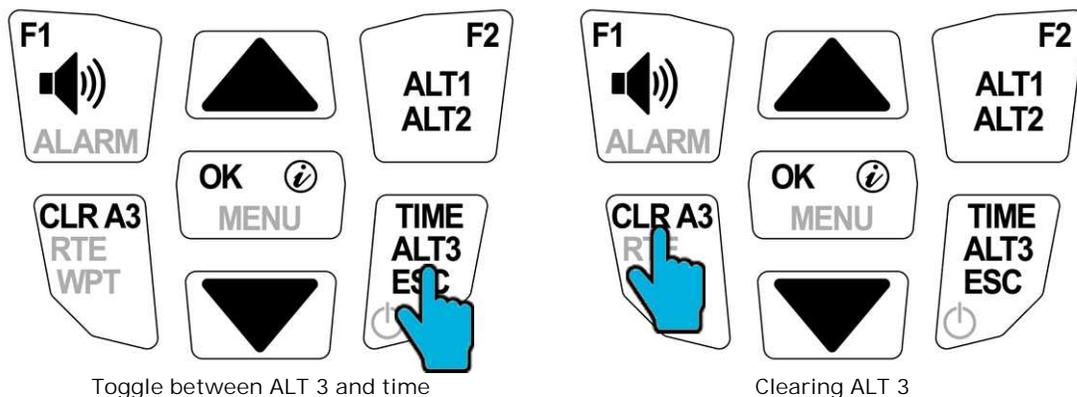
 1. Press F2 to set the relative altimeter ALT2 to your current GPS altitude.
 2. Press OK.
- When in relative altimeter mode, you can adjust the ALT2 relative altimeter up or down using the arrow keys .
 1. Press and hold ALT2.
 2. Use the arrow keys to set the relative altimeter ALT2 to your desired value.
 3. Press OK.
- When in ALT1 m/ft inverse mode, you can adjust ALT2 up or down using the arrow keys . This automatically adjusts ALT1.
 1. Press and hold ALT2.

2. Use the arrow keys to set the ALT1 m/ft inverse altimeter ALT2 to your desired value.
3. Press OK.

4.2.4 Relative altitude

Toggle between displaying ALT3 and the current time of day by pressing the ALT3 key. This altimeter always gives a relative altitude and is easy to reset to zero in flight using the Clear ALT3 (CLR A3) key. It has two main uses:

1. When your Element Track detects take-off, it automatically sets ALT3 to zero. In this way, ALT3 will indicate your height above (or below) the launch.
2. In flight, reset ALT3 to zero at any time by pressing CLR A3. This can be useful to monitor your height gain in a weak thermal.



4.3 Entering and selecting waypoints

This chapter explains how to get waypoints onto the Element Track. These might then be combined into a route, which you can learn how to do here: [Routes](#).

4.3.1 Entering waypoints manually

The manual way to enter waypoints is shown here using the example of the first waypoint, called Ager take-off in the list of the example on the page on route planning.

Note: see the [Getting started](#) section for a visual guide to help you with text entry.

1. Press and hold MENU, then use to select Waypoints. Press OK.
2. Use the arrow keys to select Edit. Press OK.
3. Press F1 to create a new waypoint.
4. Spell out Ager take-off using to select the letters and F1 / F2 to move back and forth. Use RTE to toggle capital letters and special characters. Holding down RTE will also delete a character. Press OK to move on to the next page.
5. Select N and enter 42° 2.765' for the latitude. Press OK.
6. Select E and enter 00° 44.774' for the longitude. Press OK.
7. Enter 1565 m for the Ager take-off waypoint altitude. Press OK.
8. The waypoint named Ager take-off is now saved. Repeat this procedure to enter the other waypoints.
9. Press ESC to return to the Main Setup Menu.

4.3.2 Uploading waypoints from file

You can also upload waypoints to the Element Track from many popular file formats using your computer (see [USB connection](#)^[9]). This feature is a great timesaver when you have many waypoints to enter, or if you've received a waypoints file from someone else—for instance as part of a paragliding competition. To create your own coordinates and save them into a file, see the chapter [Route planning](#)^[14].

Importing from file onto your Element Track

After having added your waypoint file to the folder "waypoints", restart the Element Track and perform the following operation to add the data to your stored waypoints list:

1. Switch on your Element Track.
2. Press and hold MENU, then use the arrow keys to select Waypoints. Press OK.
3. Use the arrows to select Import WP. Press OK.
4. The waypoint files you have copied onto your Element appear as a list. Use the arrows to select the waypoint file you want to import.
5. Select the file of your choice with OK.

Warning: Importing a waypoint file will delete all other waypoints stored on your Element Track

File formats

The Element currently supports these formats and file extensions:

- CompeGPS (*.wpt or *.com.wpt)
- FS waypoints (*.wpt or *.geo.wpt)
- OziExplorer (*.wpt or *.ozi.wpt)
- SeeYou (*.cup)
- WinPilot (*.dat)
- GPX (coming soon)
- KML (coming soon)

For the conversion of waypoint files into an accepted format, we recommend our software SeeYou.

4.3.3 Saving current position as waypoint

There are two fast and easy ways to save your current coordinates to your waypoints list.

Create a new waypoint

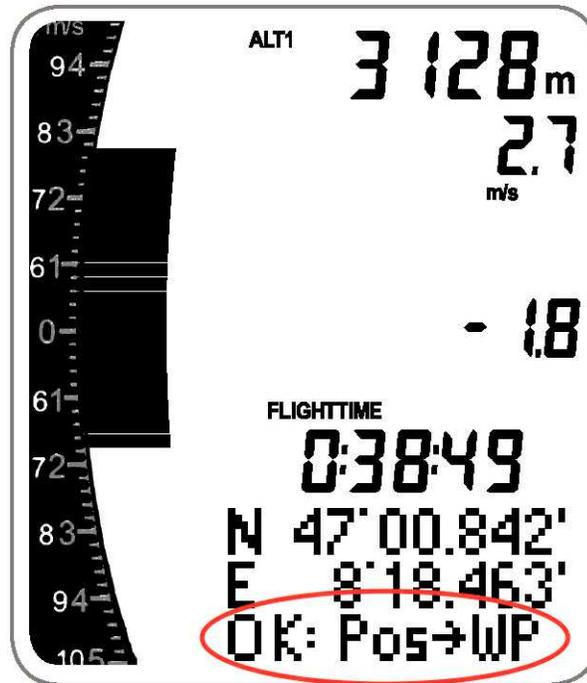
Every time you create a waypoint, the Element Track offers you its current position as the default coordinates. You can instantly save your current position as a waypoint by simply using the OK key to confirm this default waypoint information. Your position will be stored as a new waypoint with a name comprised of two numbers that represent the date and time you created the waypoint:

- Ex: 220415 152845 is a waypoint created on 22 April 2015 at 15 h 28 min 45 s (local time).

Use the info key

When you call up the Info page by pressing the info key, you can then use OK to automatically save your current location to the waypoints list. The same format is used for the waypoint name.

- Press the info key (i).
- You will see the prompt Pos→WP. Press OK.



Setting current position as waypoint

4.3.4 Goto

Navigate to any stored waypoint at any time using the Goto function. We continue using the waypoints generated in the example in [Route planning](#)^[14]. To see this entire flight explained, see the flying a route tutorial.

1. Press and hold WPT. Activate Goto - by pressing F1.
2. Use the arrow keys to select Vilanova de M. Press OK.
3. The arrow in the compass rose will now point you to Vilanova de M.
4. You can also easily cancel the Goto function. Press and hold WPT. Cancel Goto v by pressing F1.
5. As long as you still have an active route, the Element will resume pointing you to the next waypoint along your route once you cancel the Goto function.

4.3.5 Deleting waypoints

Erasing individual waypoints

You can also choose to erase waypoints from your Element's stored waypoints list. If the waypoints you delete are also part of a saved route, they will remain in the route.

1. Press and hold MENU, then use to select Waypoints. Press OK.
2. Select Edit and press OK.
3. Use the arrow keys to select Ager take-off. Press F2 to delete.
4. Your waypoint Ager take-off has been deleted.

Erasing all waypoints

Be careful with this feature! It is easy to erase all the waypoints from your Element.

Press and hold MENU, then use the arrows to select Waypoints. Press OK.
Select Delete and press OK.
Confirm all WP Delete? by pressing OK. Press ESC to cancel.

4.4 Routes

This chapter explains the technical details on creating a route. We also have a separate page with a complete tutorial on how to fly a route as well as how to fly a race.

4.4.1 Creating a route

To follow your planned cross country flight, you will need to create a route that tells the Element Track how you want to fly over the waypoints (see [Entering and selecting waypoints](#)^[23]). Note that saving a route creates a file stored separately from the waypoint list already in the device's memory. All examples here are taken from the data shown in chapter [Route planning](#)^[14].

1. Press and hold MENU, then select Route. Press OK.
2. Select Edit. Press OK.
3. Press F1 to open the list of waypoints. Use the arrow keys to highlight your first waypoint, in this case Ager take-off. Press OK.
4. Use the arrows to select the cylinder radius for the waypoint. We recommend the default value of 400 m. Press OK.
5. Repeat these steps to add the other waypoints on the route.
6. Press ESC to save the route and return to the Main Setup Menu.

4.4.2 Activating the route

In order to tell the Element Track you are ready to fly the saved route, you must activate the route. This gives the Element Track the instruction to start navigating you along the chain of waypoints.

Note that you will be prompted to enter a start time for your route. For normal cross country navigation, simply select No for the start time. In chapter [Flying an XC route](#)^[4] you learn how to fly a route with the Element Track. (Entering a start time for your route activates your Element Track's competition mode. See the race tutorial for information about flying competition routes.)

1. Press and hold RTE. Confirm Route Start by pressing F2.
2. You will see the prompt Start time. Use the arrow keys to select No. Press OK.
3. The route is now activated and your Element will start navigating automatically upon take-off.

4.4.3 Deactivating the route

An activated route will remain in active mode until you deactivate it, even if you switch off your Element Track. You also cannot edit the route until you deactivate it.

1. Press and hold RTE. Deactivate Route v by pressing F2.

4.4.4 Erasing the route

Deleting the route will not erase the waypoints from your stored waypoints list, because they are stored separately.

1. Press and hold MENU, then use the arrow keys to select Route. Press OK.
2. Select Del all WP. Press OK.
3. You will see the prompt Delete Route? Press OK.

4.5 Airspaces

Activating airspace files on your Element Track:

- [Airspace resources](#)^[29]
- [Activating airspace files](#)^[29]
- [Scenario: Flying straight toward an airspace](#)^[29]

4.5.1 Airspace resources

See chapter [Airspace resources](#)^[13].

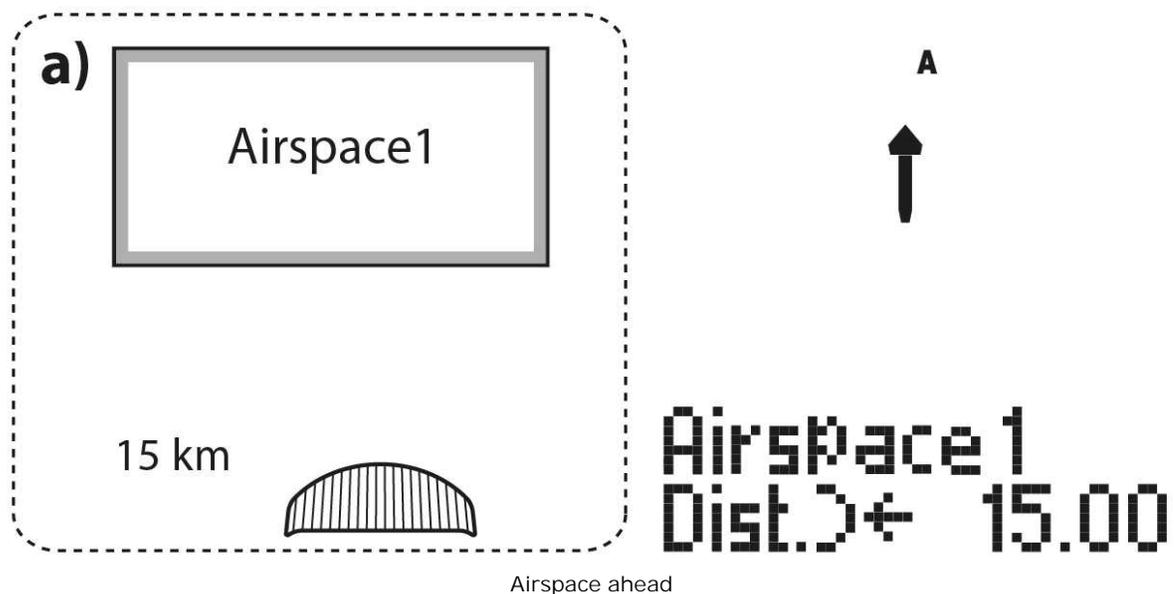
4.5.2 Activating airspace files

After having loaded airspace files onto the Element Track via [USB connection](#)^[9], you must activate the files to be displayed on your Element Track.

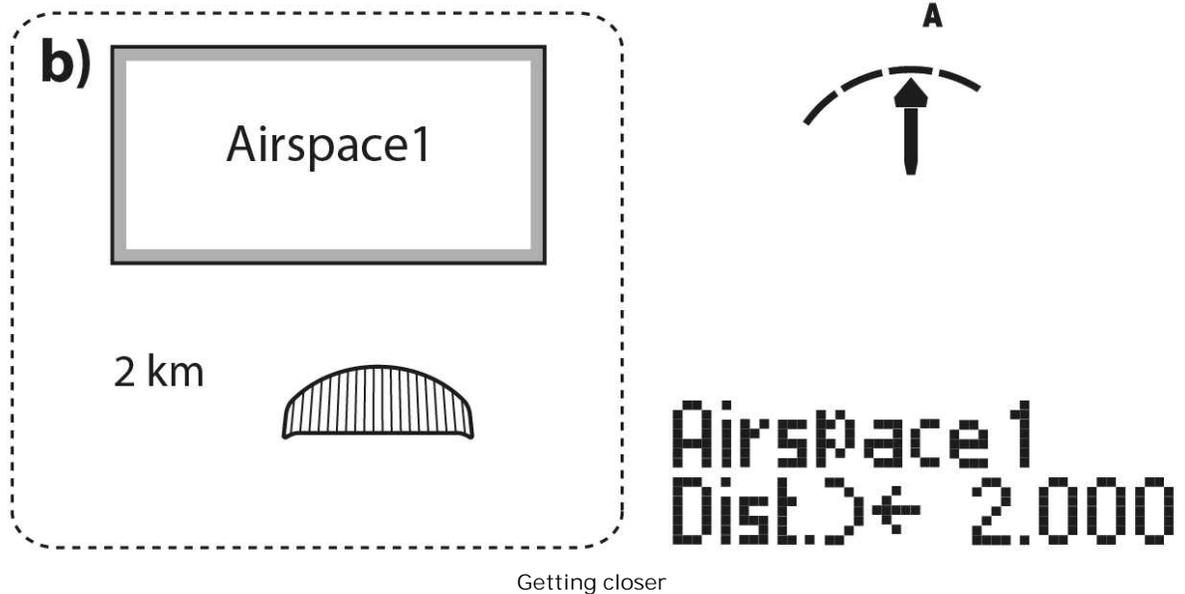
1. Press and hold MENU.
2. Use the arrow keys to scroll to Airspaces. Select with OK.
3. Select I mport AS, select with OK.
4. Then scroll through your files using the arrow keys and activate the desired files with F1.
5. The activation of each file is confirmed with a v

4.5.3 Scenario: Flying straight toward an airspace

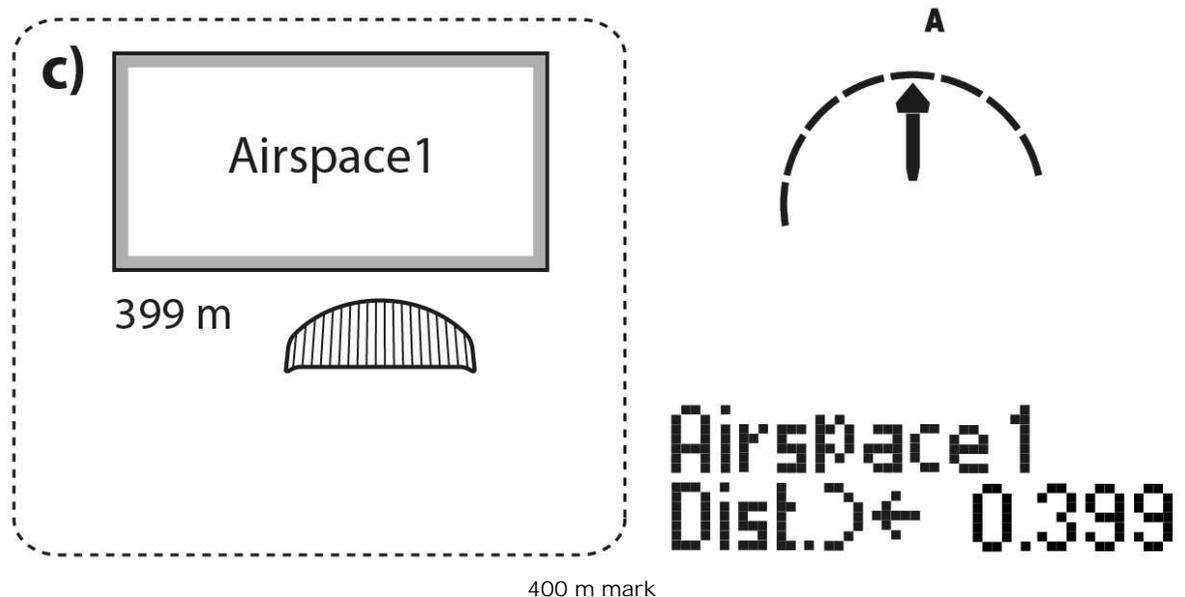
- a) The airspace is directly in front of the pilot with a distance of 15 km. The A discreetly indicates the airspace ahead. On the flight info page of the airspace, the arrow points toward the closest point of the airspace. On this particular page, the arrow does not indicate any navigational elements such as waypoints. See flight mode for further information.



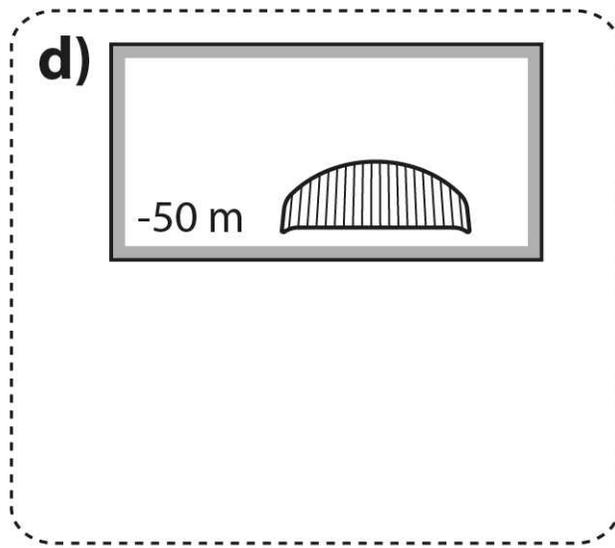
- b) The pilot is getting closer to the airspace, a "wall" indicating the extension of the airspace is building up. The arrow continues to point toward the closest point of the airspace.



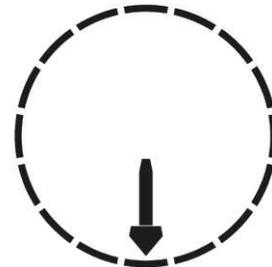
- c) The pilot has reached the 400 m mark and an alarm sounds off. At this point the flight info page automatically jumps to the info page about this particular airspace.



- d) The pilot has now entered the airspace. The alarm sounds again. The arrow in the compass rose now shows the closest point of the airspace that is outside - in other words, it leads the pilot out of the airspace the quickest possible way.



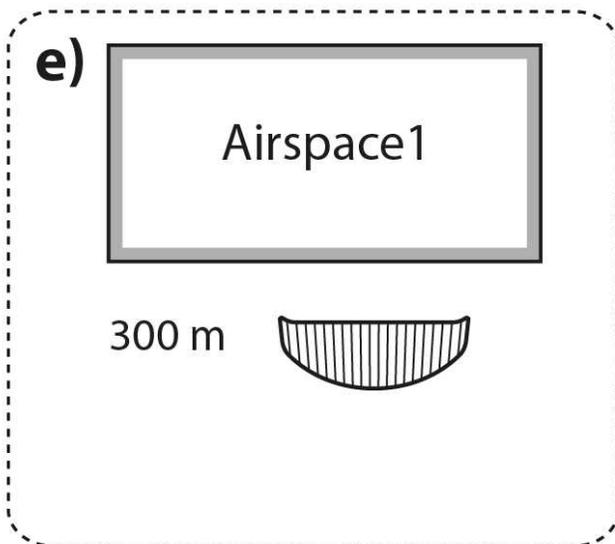
Inside the airspace



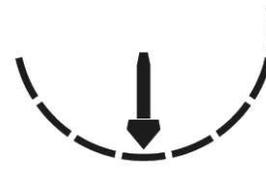
A

AirSpace1
Dist. → -0.050

e) The pilot has turned around and left the airspace behind him.



Left the airspace



A

AirSpace1
Dist. → 0.300

Part



5 Flight

All about flying with Element Track:

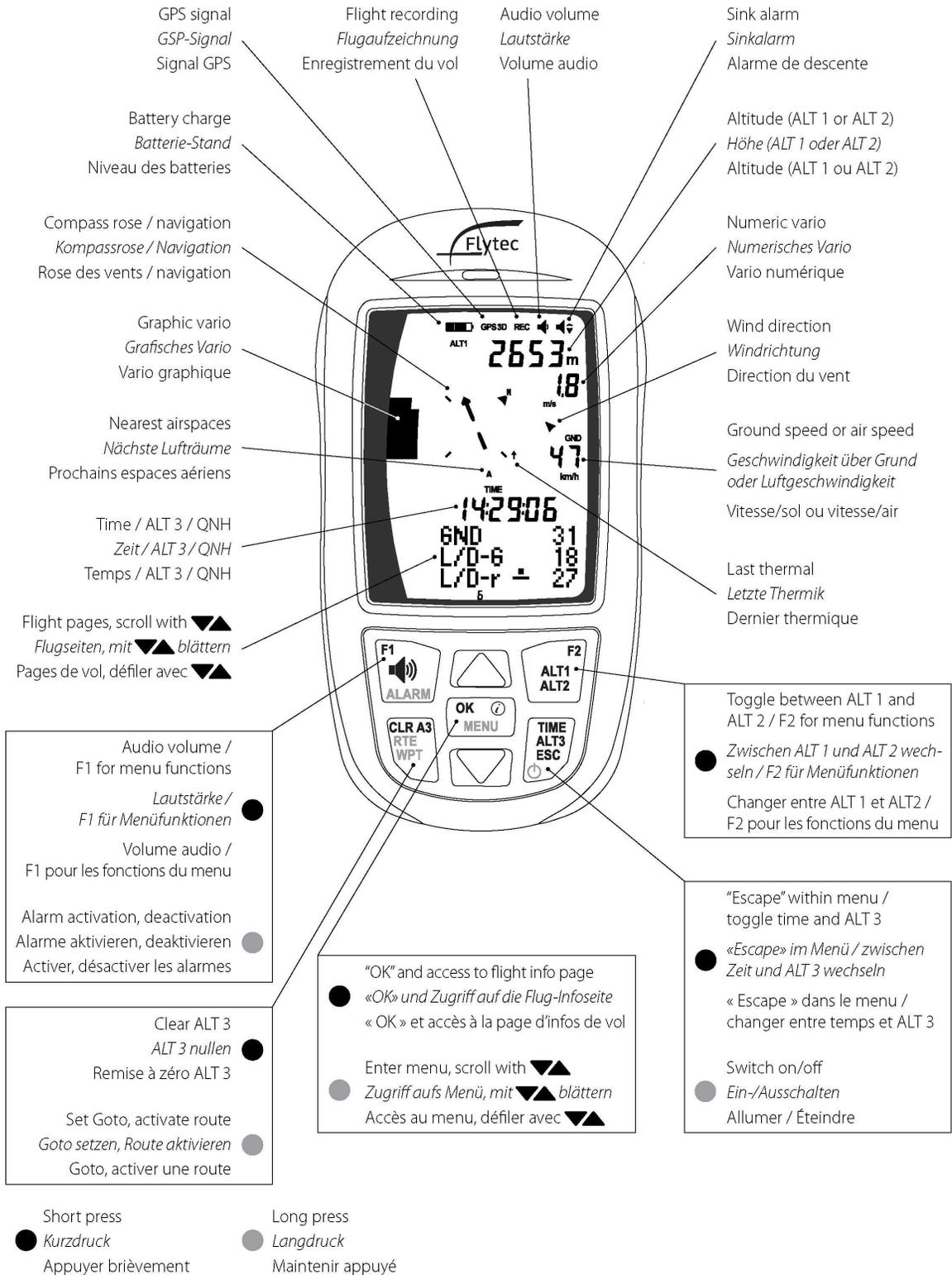
- [Flight mode](#)^[33]: Your flight screen and flight information on the Element Track
- [Flight recording](#)^[42]: Set when and how the Element Track is recording your flights
- [Flying an XC route](#)^[44]: A little tutorial on how to fly a route with the Element Track
- [Flying a competition](#)^[49]: Tutorial and video material on how to fly a race with the Element Track

5.1 Flight mode

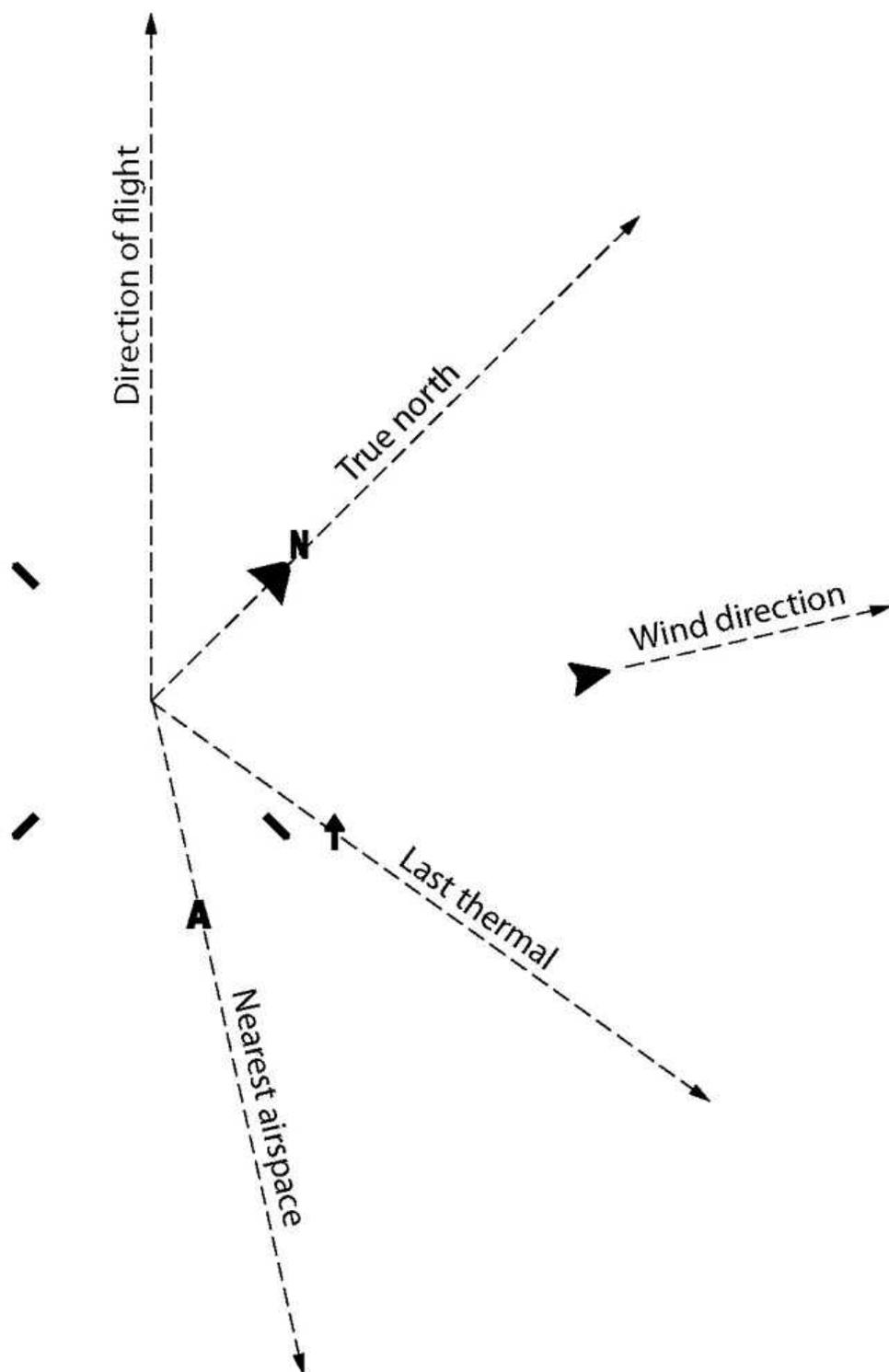
5.1.1 Overview

Here we show you what you see on your screen during flight. In order to configure any of these indicators, follow these links: [Altimeters and altitude adjustment](#)^[22], [Vario settings](#)^[64], as well as [Audio settings](#)^[65], [Speed settings](#)^[69] and [General settings](#)^[63], such as time and units. You can also adjust the settings of the [Flight recording](#)^[42].

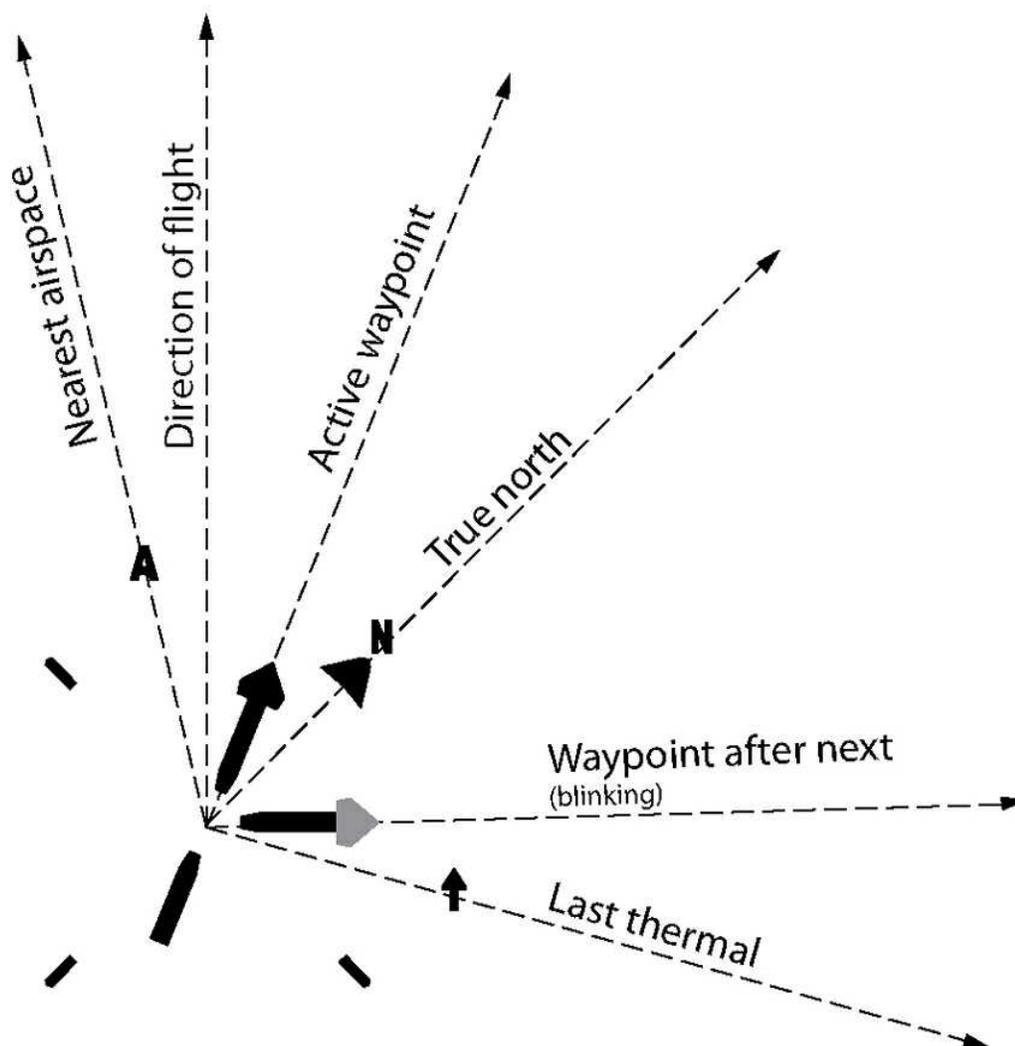
There is a tutorial for [Flying an XC route](#)^[44] as well as one for [Flying a competition](#)^[49], where all the information on your flight screen is summarised in an example flight.



Flight display overview



Navigation without active waypoint/route

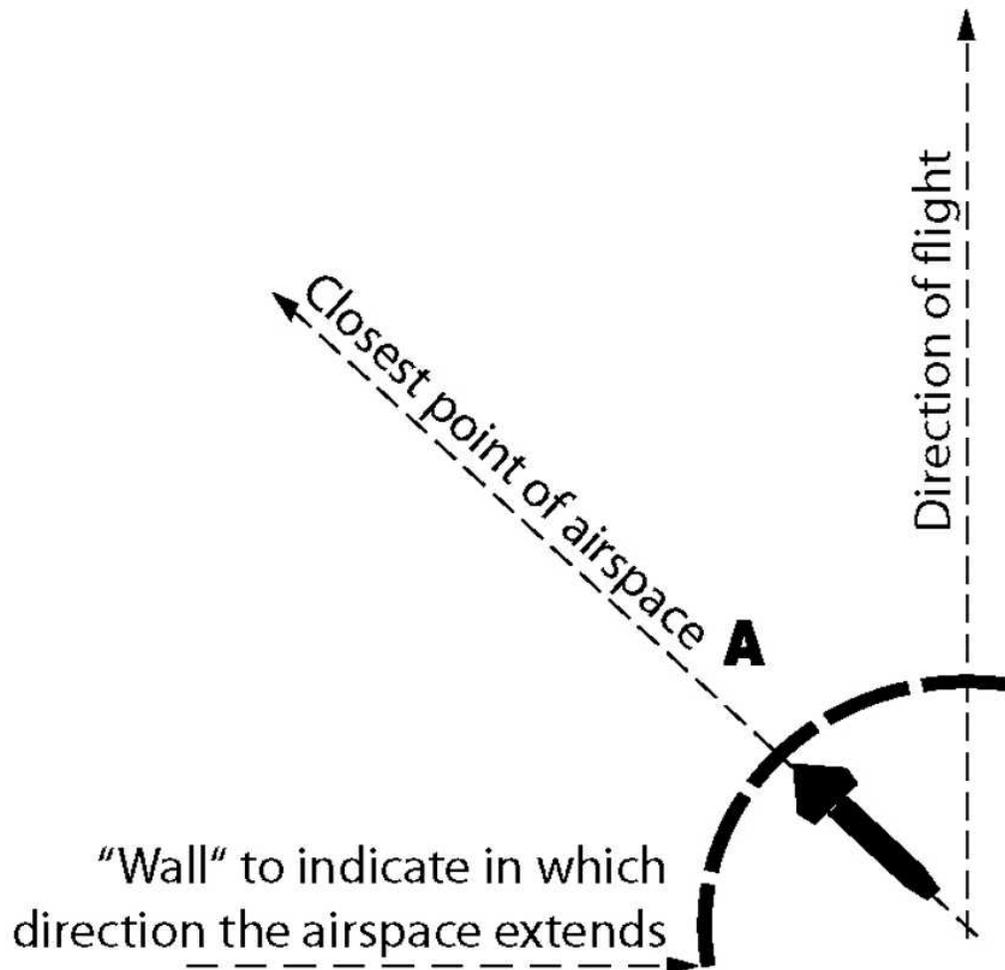


Navigation with active waypoint/route

For your navigation, icons on the compass rose indicate bearings relative to your direction of flight. Your direction of flight is always at the very top of this display.

Indication of airspaces

Airspaces are indicated separately on the Element Track. If you are on any of the flight pages 1 to 7 (see below), up to three airspaces are indicated with an "A" in your compass rose. If you choose the page of a particular airspace (pages 8 to 10), then indication in your compass rose changes. If you get closer than 400 m to a particular airspace, the flight info page automatically jumps to that airspace. We recommend you read the following scenario.

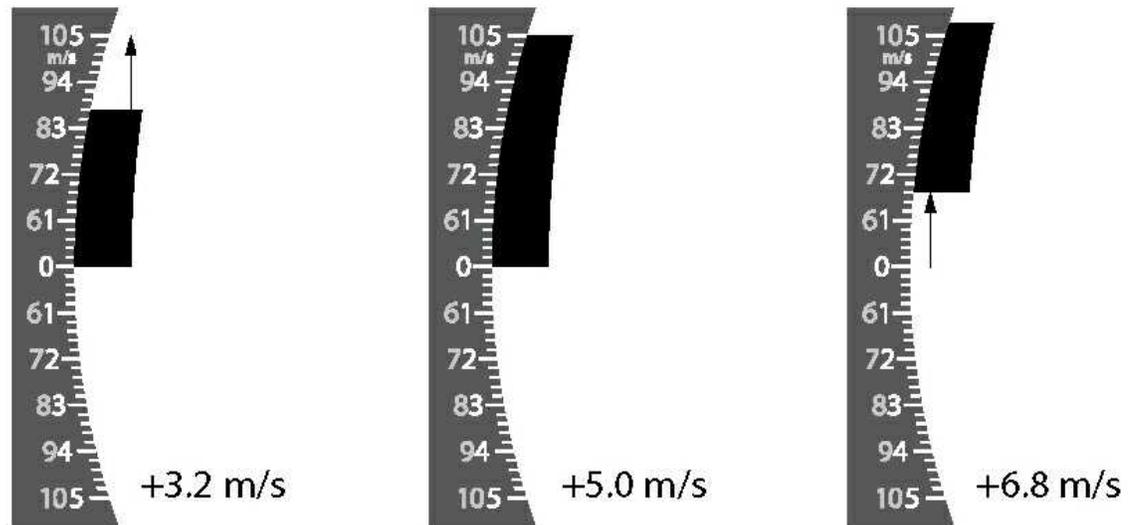


Indication of airspace details in the compass rose

5.1.2 List of indicators

- ALT 1 gives your altitude above Mean Sea Level. It is automatically calibrated by GPS.
- Ground speed is given in kilometres per hour, knots, or miles per hour.
- The compass rose shows your direction of flight by indicating the relative position of True North with the symbol N. You are always flying toward the top of the compass rose.
- Last thermal shows the relative position of your last climb. If you need to return to that thermal, turn your glider so that the indicator appears at the top of the compass rose.
- Airspace shows the direction to the nearest airspace. (Feature coming soon!)
- The graphic vario shows your vertical speed (climb or sink) in metres per second, ranging from +10

m/s to -10 m/s. You may also choose feet per minute, ranging from +20 fpm x100 to -20 fpm x100.



Graphic vario display.

- The integrated vario gives your vertical speed averaged over the last five seconds.
- Wind direction is shown once you have flown a few 360s. Your Element Track will automatically calculate the wind direction from your drift and show it as a large wind arrow in the compass rose.

Tip: When landing, keep the wind arrow pointing down. That means you are flying into wind.

5.1.3 Wind direction and strength

Wind direction is shown on the display as a small wind arrow beside the compass rose. When the arrow points up, you have a tailwind. When the arrow points down, you are flying into a headwind. Wind speed is shown on Flight Information Display Page 2, as shown below.

Note: The Element Track calculates wind direction and strength by measuring your track over the ground during 360-degree turns and calculating your drift. For the most accurate wind reading, you should fly two or more slow circles, holding constant speed and bank angle.

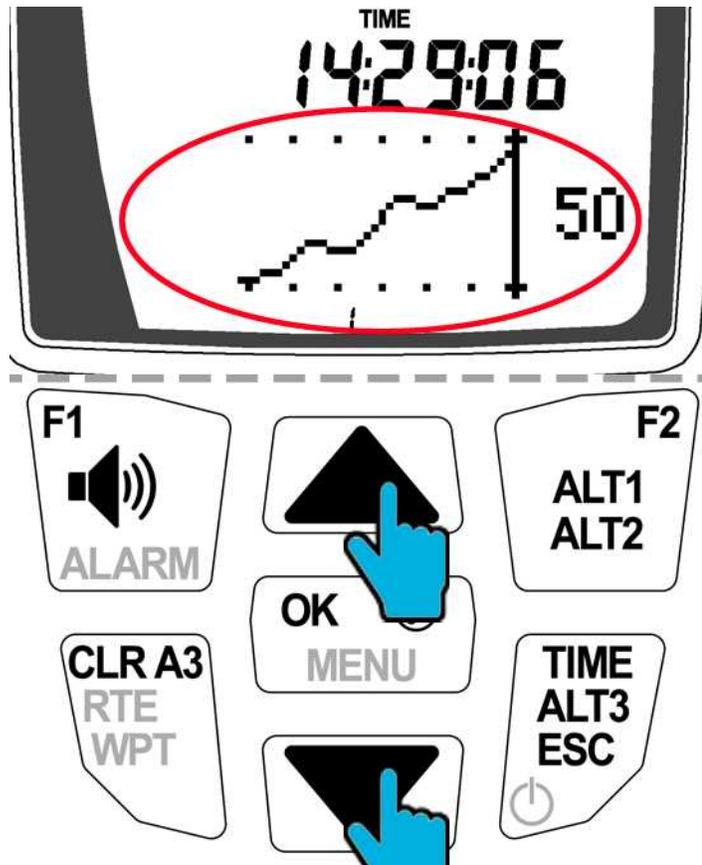
5.1.4 Relocating thermals

To help you in cross country flight, your Element Track will remember the location of the last thermal as you fly along your route. The bearing to your most recent thermal is displayed as a small *up arrow* on the compass rose. If you fall out of a thermal, or if you are sinking out and want to return to the last thermal, turn your glider until the up arrow indicator appears at the top of the compass rose, then fly straight until you enter the thermal and begin climbing again. You should also use the arrow keys to select Flight Information Display Page 3 (below), which will tell you the bearing and distance to your last thermal. Learn how to configure the [Last thermal threshold](#)^[64].

Tip: You can also use the [Goto](#)^[27] function to guide you to your last thermal, which will appear in your waypoints list.

5.1.5 Flight pages

In flight, yourElement Track has a lot more information than can be shown all at once on the display screen. Press the arrow keys to cycle through seven pages in the Flight Information Display field, which appears at the bottom of the display screen.



Flight pages: scrolling and display area

- *Glide ratio:*
 - GND: Your ground speed is indicated here, if you have a vane wind sensor connected and your air speed is shown in the middle section of your display.
 - L/D-G: Glide ratio over ground
 - L/D-r: Glide ratio required to reach the active waypoint
- *Wind data:* This page informs you about the Element's measurement of wind, which is calculated from your drift.
 - Track: Actual track of your flight (0-360°)
 - W-dir: Wind direction (0-360°)
 - Wind: Time since last calculation (in minutes) / Wind speed (km/h, kts, or mph, depending on your unit settings)
- *Last thermal pages:* This page is a multifunction navigation tool that helps you fly to your intended target. Use this page when flying to the next waypoint in an active route or when using the Goto function. You can also use this page to help return to the last thermal you climbed in.
 - bear.: Bearing to last thermal (0-360°)
 - Track: Actual track of your flight (0-360°)
 - dist.: Distance to last thermal (km or miles)
- *Active waypoint:*



Current glide ratio will reach the active waypoint with extra height



Current glide ratio will just reach the active waypoint



Current glide ratio **will not** reach the active waypoint

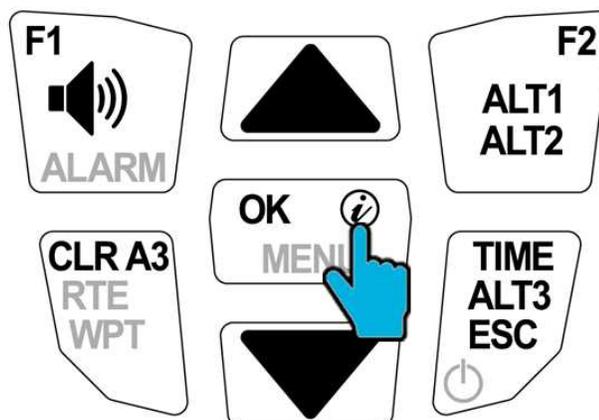
Glide ratio to active waypoint

5.1.6 In-flight information page

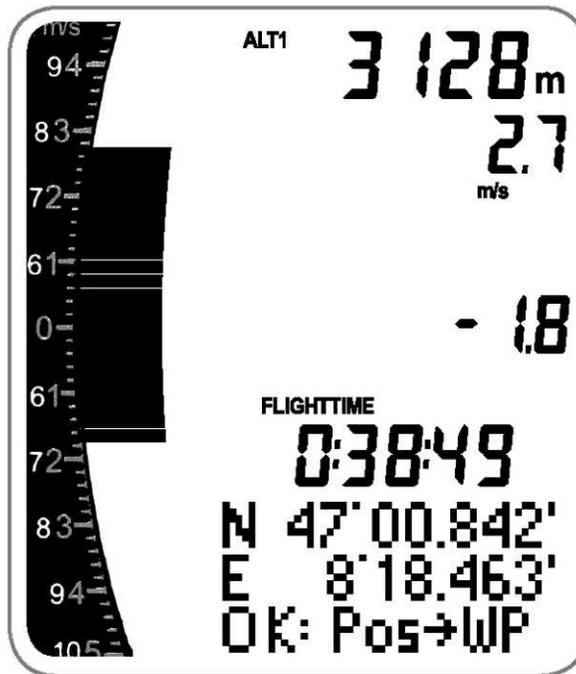
Pressing the Info key at any time in flight will display a useful information page. After 20 seconds the screen will return to normal, or you can immediately return to the normal display by pressing ESC.

Information Page:

- Maximum value of ALT1
- Maximum climb rate of the current flight
- Maximum sink rate of the current flight
- Elapsed flight time
- Current GPS coordinates
- [Saving current position as waypoint](#) ^[26]



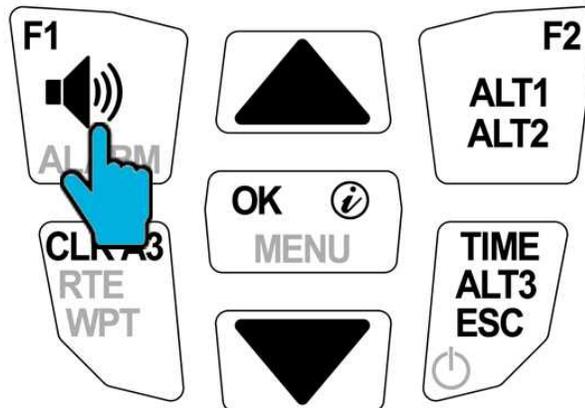
Pressing the info key in flight



In-flight info screen

5.1.7 Audio volume

In flight you may adjust the audio volume by pressing the loudspeaker key on your keyboard.



Adjusting audio volume in flight.

5.2 Flight recording

Set when and how the Element Track is recording your flights by following chapters:

- [Detecting take-off](#)^[43]
- [Recording](#)^[43]
- [Landing](#)^[44]

5.2.1 Detecting take-off

The Element Track is programmed to automatically detect your take-off. Launch detection is enabled as soon as GPS 3D has appeared. Your Element Track will know the moment you begin flying. Give your Element Track at least 2 minutes with an unobstructed view of the sky to acquire a GPS signal. GPS 3D will appear at the top of the display screen when the device receives sufficient satellite reception. The Element Track will automatically calibrate its clock and GPS altimeter. Battery charge state is also indicated.

Note: Your radio and mobile phone will interfere with GPS reception, so keep them away from your Element Track.

5.2.2 Recording

The symbol REC will appear at the top of the display screen when your Element is recording flight data. It saves all the data from your flight, and it will only stop recording when it detects your landing or if you switch off your Element. Find out how to get your flight data off your Element via USB and how you can evaluate it.



Recording interval (scan rate)

While the Element Track updates its position every second using GPS, its default setting is to record every 10 seconds in order to manage tracklog file size. The record interval, called scan rate, is adjustable from between 1 to 30 seconds. At 1 second scan rate, your Element Track can record a single flight of up to 5.4 hours. Complete flights are then stored in the Element's general memory, which can hold 10,000 hours of flight time.

1. Press and hold MENU, then use the arrow keys to select Flight memory. Press OK.
2. Select Scan rate. Press OK.
3. Enter your desired value. Press OK.
4. Press ESC to return to the Main Setup Menu.

We recommend you keep the scan rate between 5-10 seconds and manage the memory capacity by deleting flights from your Element Track once you have transferred the data to your computer. This scan rate range is especially important if you will be uploading your flights to an online contest site.

Record mode

The Element Track will default to automatic flight recording mode. You can disable automatic flight recording and choose manual recording mode. This could be useful if you wanted to record a hike-and-fly adventure, for instance, including your track while walking.

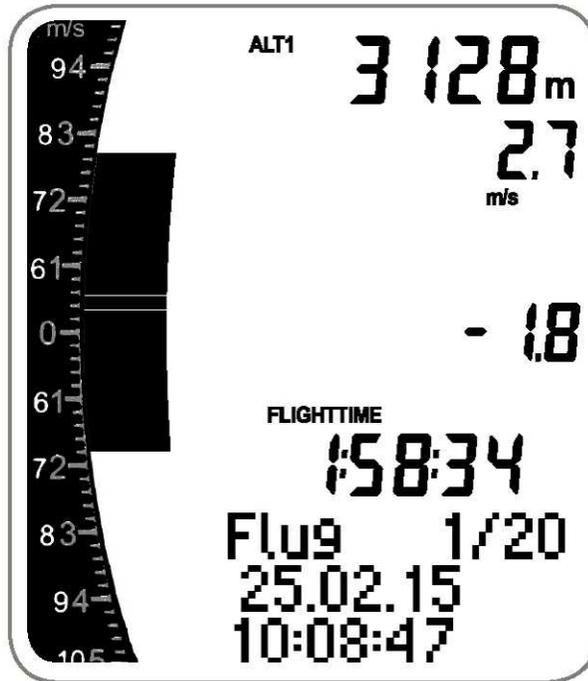
1. Press and hold MENU, then use the arrow keys to select Flight memory. Press OK.
2. Select Record mode. Press OK.
3. Select Man. Press OK.
4. Press ESC to return to the Main Setup Menu

In manual mode, your Element Track will begin recording as soon as it acquires a GPS fix, indicated by the symbol GPS 3D. It will stop recording when you switch it off.

5.2.3 Landing

Note that upon landing, your Element Track will need a few seconds to determine for sure that you've stopped moving. Once it has, it will display a summary of your flight. While the flight summary is displayed, press the on/off button to switch off your Element Track. The flight summary page displays the following information:

- Maximum value of ALT1
- Maximum climb rate of the flight
- Maximum sink rate of the flight
- Total flight time
- Position in Element Track's memory (most recent flight is always #1)
- Date
- Time of take-off



Flight summary page

5.3 Flying an XC route

A little tutorial on how to fly a route with the Element Track.

- [Prepare for your flight](#)^[45]

- [Fly the route](#)^[45]
- [After your flight](#)^[48]

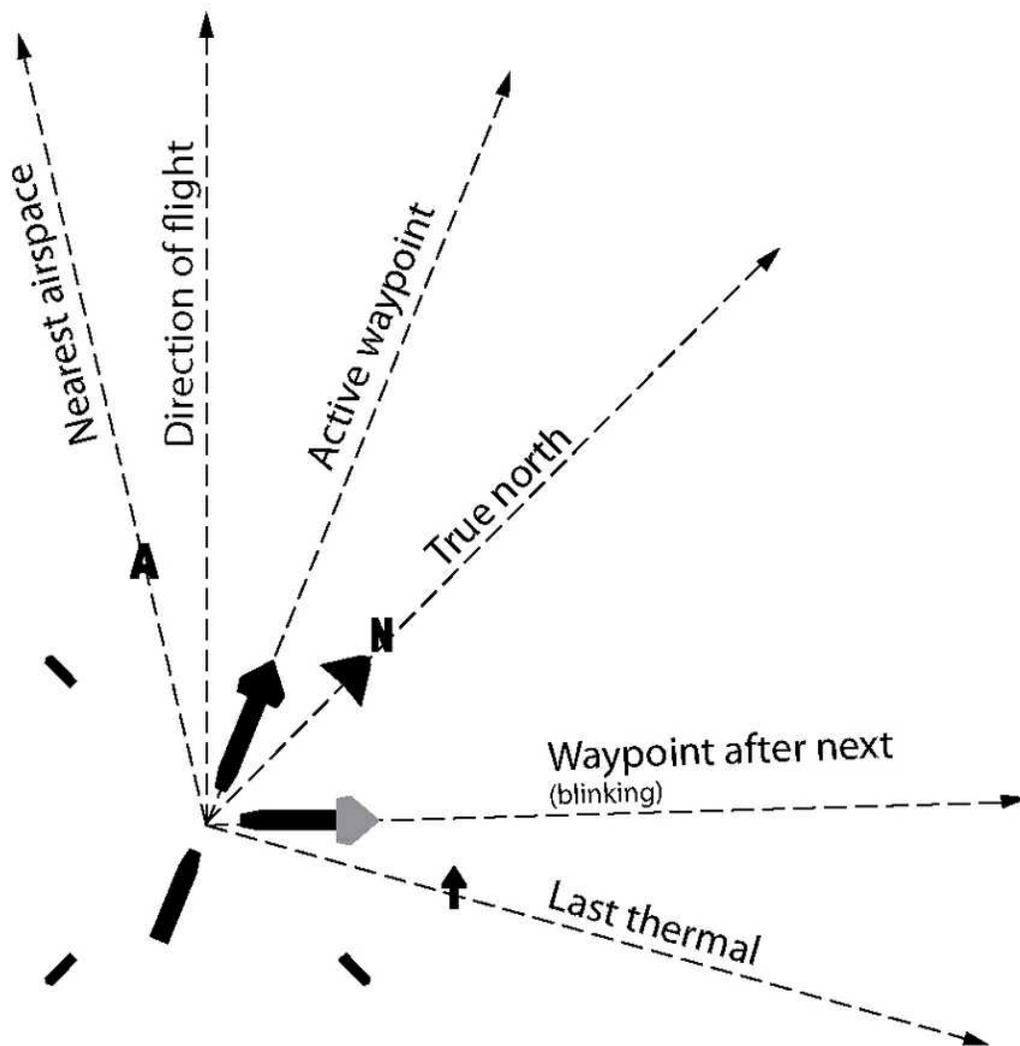
5.3.1 Prepare for your flight

1. Generate coordinates for your flight in chapter [Route planning](#)^[14]
2. Import or enter waypoints into your Element Track by following chapter [Entering and selecting waypoints](#)^[25]
3. Create and activate a route from instructions in chapter [Routes](#)^[28]
4. Go and fly.

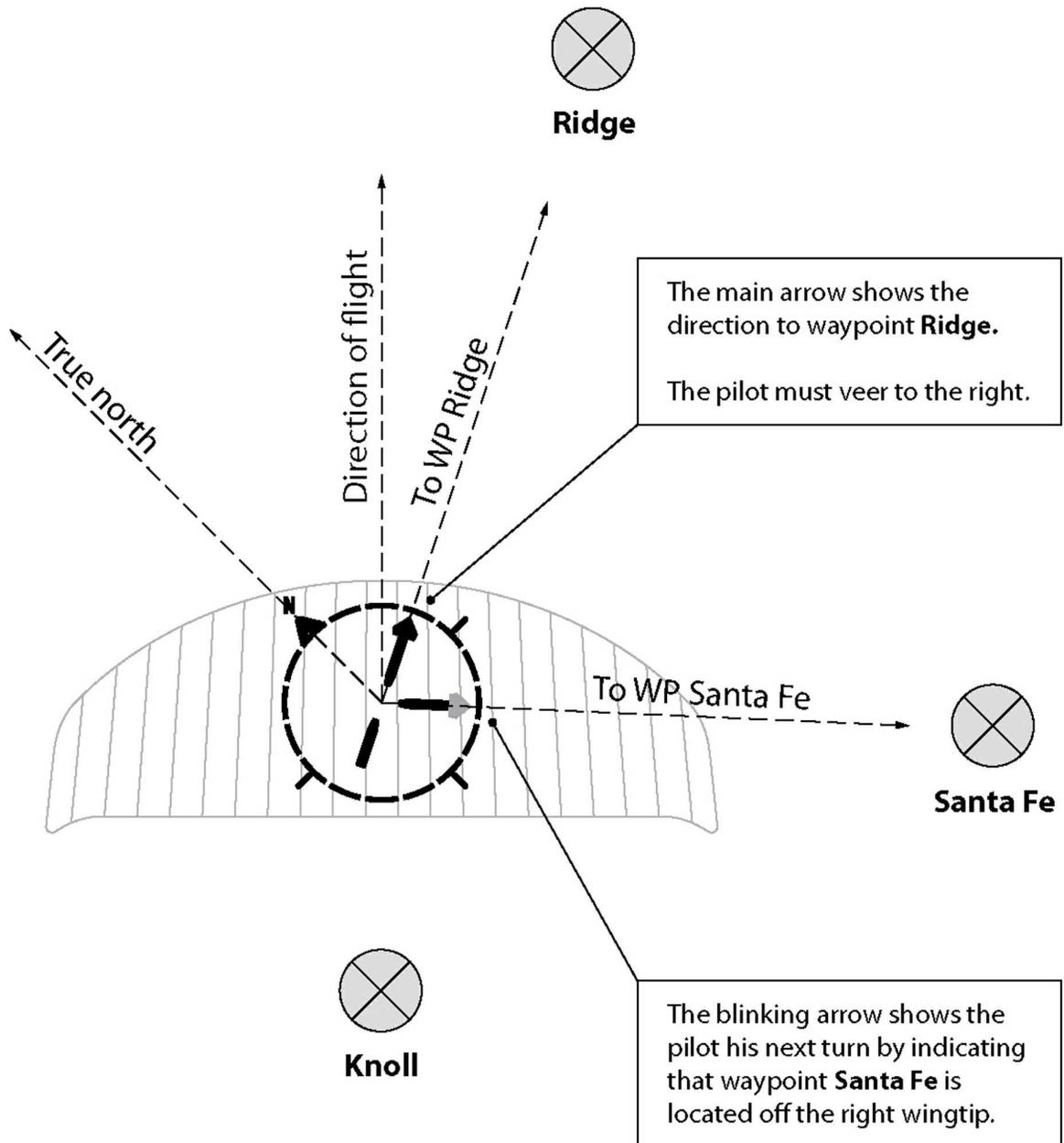
5.3.2 Fly the route

In flight, the Element Track will show you the direction to your next waypoint as a bold arrow appearing in the compass rose. To fly to the next waypoint on your route, turn your glider until this arrow stays pointed toward the top of the compass rose. Every time you cross a waypoint, your Element Track will sound a tone and begin pointing you toward the next waypoint.

In the example flight, when you fly from Ager take-off, the device will automatically point the way to Vilanova de M. Once you pass over Vilanova de M, your Element Track will point you toward Knoll, and so on. Shown below, the pilot has passed Knoll and is heading toward Ridge, but the Element shows the glider is slightly off course. The Element also shows that our pilot's next turn will be to the right, to set a course for Santa Fe.



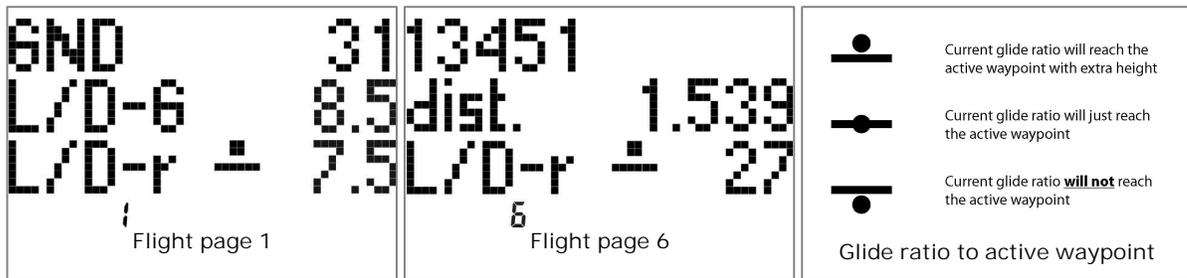
All icons on the compass rose indicate bearings relative to your direction of flight. Your direction of flight is always at the very top of this display



Flying the route toward Ridge with next waypoint being Santa Fe.

Required glide to next waypoint

Use Flight Information Display Pages 1 and 6 from chapter [Flight pages](#)^[39] to help you determine if you have enough altitude to reach your next waypoint when you set off on glide. If your L/D ratio over ground is higher than L/D-required, accelerate with confidence! If you are under the required glide ratio, search for lift.



Passing over waypoints

The Element will sound a short, cheerful tone when you cross a waypoint cylinder edge, and the compass rose will point you toward the next waypoint on your route.

Deviating from your route

You do not need to follow your route exactly as planned. It is easy to return to a previous waypoint on the route, or to skip a waypoint, or to interrupt your route and navigate to any other waypoint in your stored waypoints list.

Skipping or repeating waypoints

A useful option is to skip forward or backward within an active route. Imagine you just caught a rocketing thermal to over 3000 m at Vilanova de M, so you decide to skip Knoll and proceed straight to Ridge instead.

1. Press and hold RTE.
2. Use the arrow keys to select Ridge. Press OK.

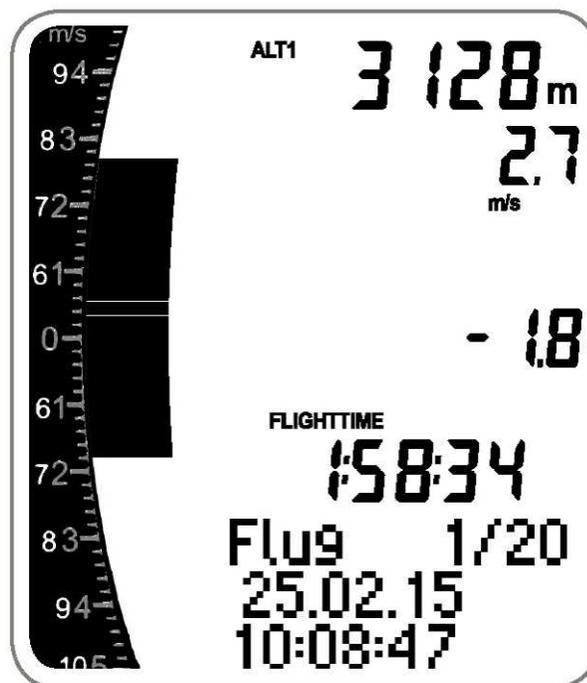
You will now be guided to the waypoint you have selected. Once you reach it, the active route will continue from there. Use the same procedure to skip backwards to a previous waypoint in your route.

Goto

Activate or deactivate [Goto](#)^[27]

5.3.3 After your flight

Review your flight with the flight summary page in your flight memory



Flight summary page

Transfer your flight onto your computer using a [USB connection](#) and evaluate and visualise it using various tools.

5.4 Flying a competition

This section explains step-by-step how to use the Element Track to perform your best in competitions using the "Berga Invitational" as a step-by-step example. If this is your first comp, don't panic! Learning the ropes is not as complicated as it might seem, and we will make it as easy as possible. That way, all you need to focus on is flying the race.

5.4.1 Video

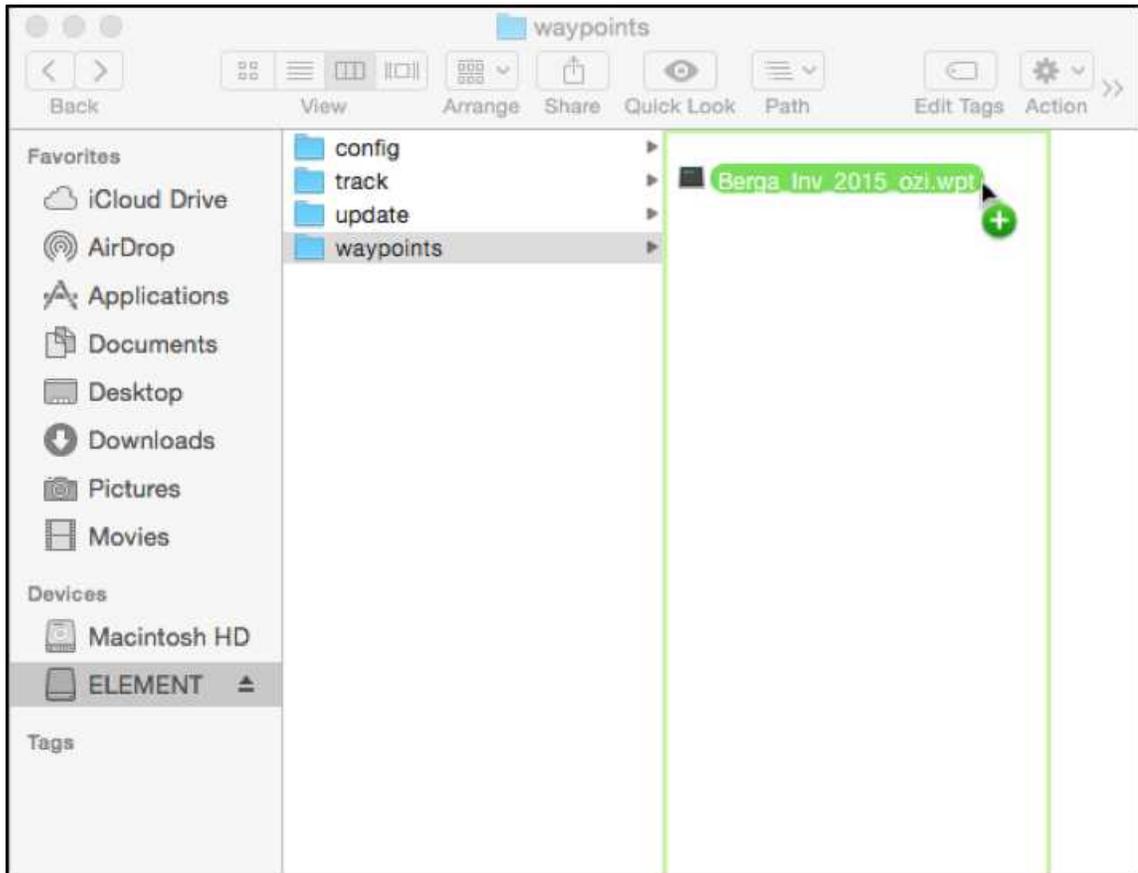
We have summarised all the information on this page in a video tutorial on youtube, if you prefer watching to reading. See the following link: <https://youtu.be/0mlAKxkUSLw>

5.4.2 Prepare for the competition

Waypoints

You take the first step to success well before race day when you receive the waypoints file from your competition organiser and then import those waypoints into your Element Track. Typically, competition organisers will designate a large number of waypoints to give themselves flexibility when creating the competition tasks later. They will save the waypoints as a file, and then they will either email the waypoints file to you as part of your registration package or else make the waypoints file available for download on the competition website. In our example, you've downloaded the file from the Berga Invitational site and are dragging it into the folder "waypoints" which appeared on your computer once the Element was connected via [USB connection](#).

Next you click "eject," then disconnect the Element Track from the computer.



Loading competition waypoints onto the Element Track

1. Switch the Element on and use MENU > Waypoints > Import WP to add the waypoints to your stored waypoints list, as explained on the pages waypoints.

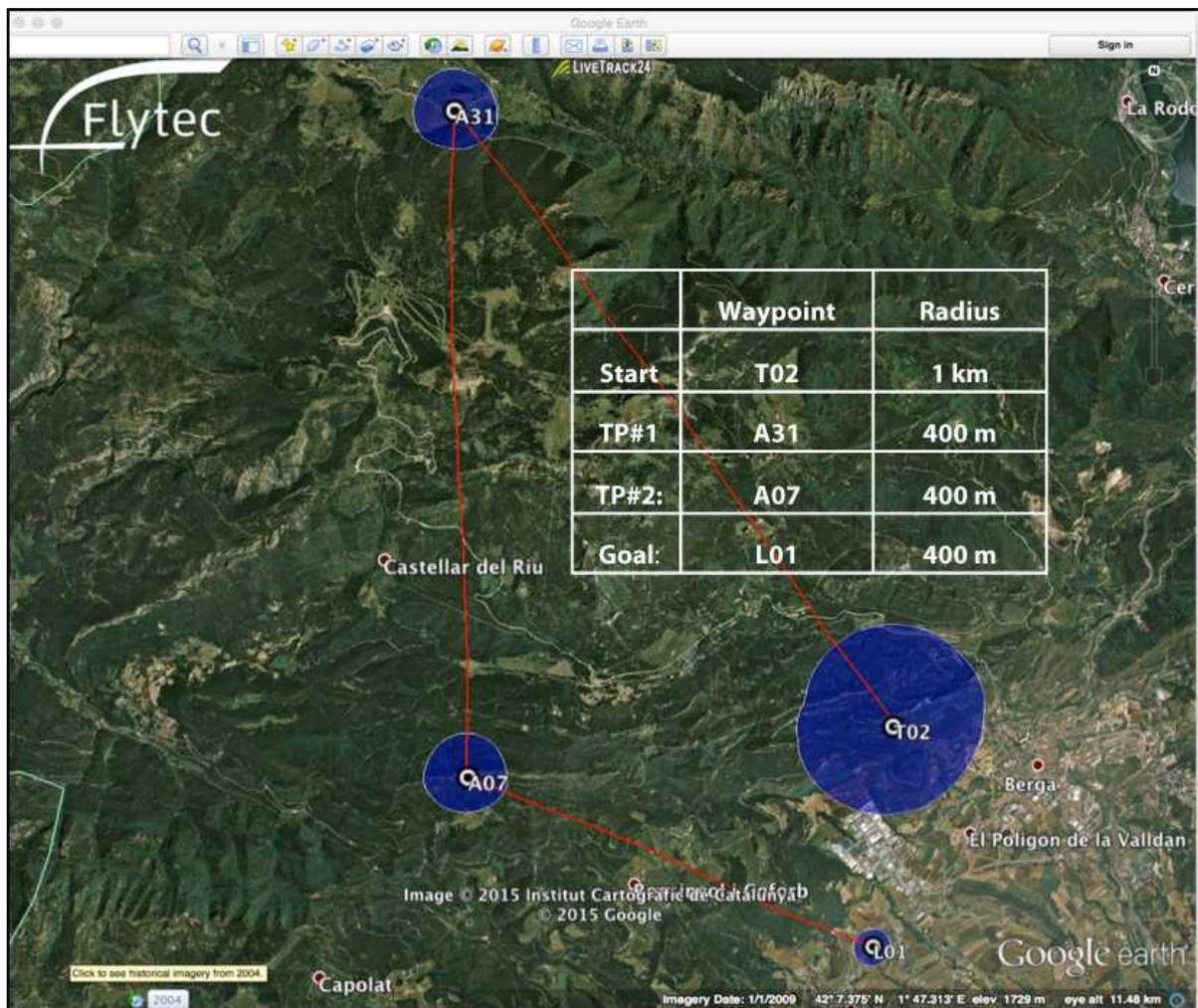
Note: the Element Track stores 350 waypoints. You may have to delete some waypoints from your Element Track's memory to clear enough space before importing your competition waypoints.

Task briefing

Your competition organisers will host a briefing during which they explain the day's "task". A task is just a route flown over designated waypoints, as fast as possible. There are several things that you need to pay attention to in order to give your Element Track the information it needs to guide you along the task.

- Start time. The task will begin at a designated time called a start gate. Sometimes the task may specify multiple start gates, meaning you may start at one time, or ten minutes later, or ten minutes after that, for instance.
- Start type. The task will begin as either an EXIT cylinder (more common) or as an ENTER cylinder (less common). If your start is an EXIT cylinder, then you must be inside the cylinder when the start gate opens and fly out of the cylinder to begin the task. If your start is an ENTER cylinder, you must be outside of the cylinder when the start gate opens and then fly into the cylinder to begin the task.
- Waypoints. Which waypoints make up the task route, and in what order? Critically, what is the cylinder radius for each waypoint?
- Goal. Is the task complete when you cross the cylinder of the final waypoint, or must you cross a

goal line defined by the final waypoint? With this information you are ready to load the task into your Element. The Berga Invitational has briefed you on today's task:



The competition route

Entering the competition route

If you have a route already active on your Element Track, deactivate it (see chapter [Routes](#)^[28]). If you have a route already stored on your Element Track, erase it (see chapter [Routes](#)^[28]).

Now enter the task waypoints:

1. Press and hold MENU, then select Route. Press OK.
2. Select Edit. Press OK.
3. Press F1 to open the list of waypoints. Use the arrow keys to highlight T02. Press OK.
4. Use the arrow keys to enter 1000 m for the cylinder radius. Press OK.
5. Repeat for all required waypoints.
6. Press ESC to save the route and return to the Main Setup Menu.

Activating the competition route

Now you must activate the route.

Note: selecting "yes" at the prompt "Enter start time" automatically activates the Element's competition mode.

Warning: make sure your Element's [General settings](#) setting matches your competition location or you will not start the race on time.

1. Press and hold RTE. Confirm Route Start by pressing F2.
2. You will see the prompt Start time. Use the arrow keys to select yes. Press OK.
3. Use the arrow keys to enter 11 for the start time hours. Press OK.
4. Use the arrow keys to enter 30 for the start time minutes. Press OK.
5. Use the arrow keys to select 1 for the number of start gates. Press OK.
6. Use the arrow keys to choose EXIT cylinder. Press OK.

5.4.3 Flying the competition

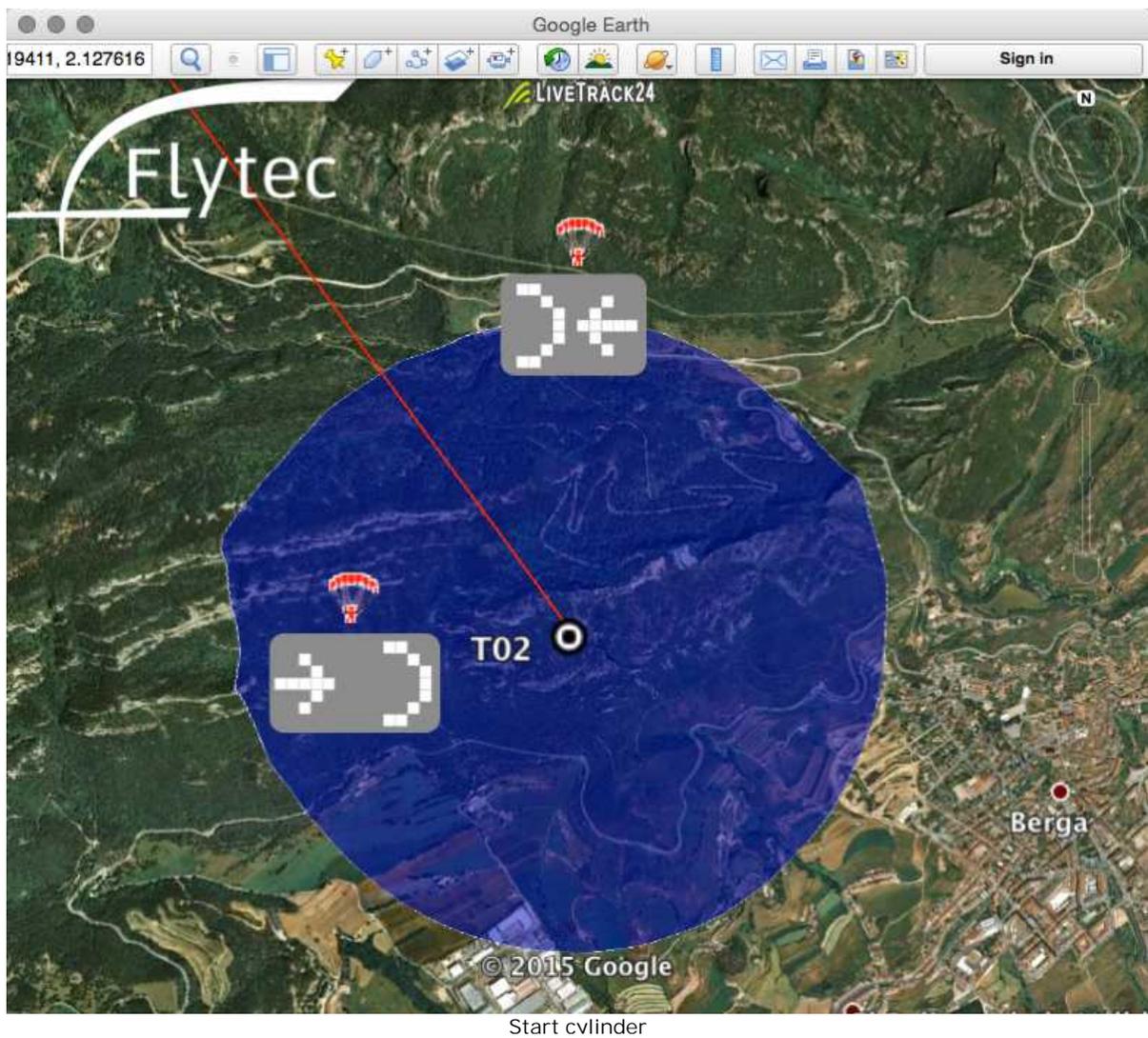
Flying before the official start

You'll want to be in the air, jockeying for height and position, so that when the start gate opens you are as close to the starting line as you can be. The Element Track will help you get an optimal start. In the air, use the arrow keys to select Flight Information Display Page 7, which will indicate your position relative to the start cylinder as you wait for your start time.

- Position relative to cylinder, and +/- start time
- Speed required to reach the cylinder edge at start time
- Distance to cylinder edge

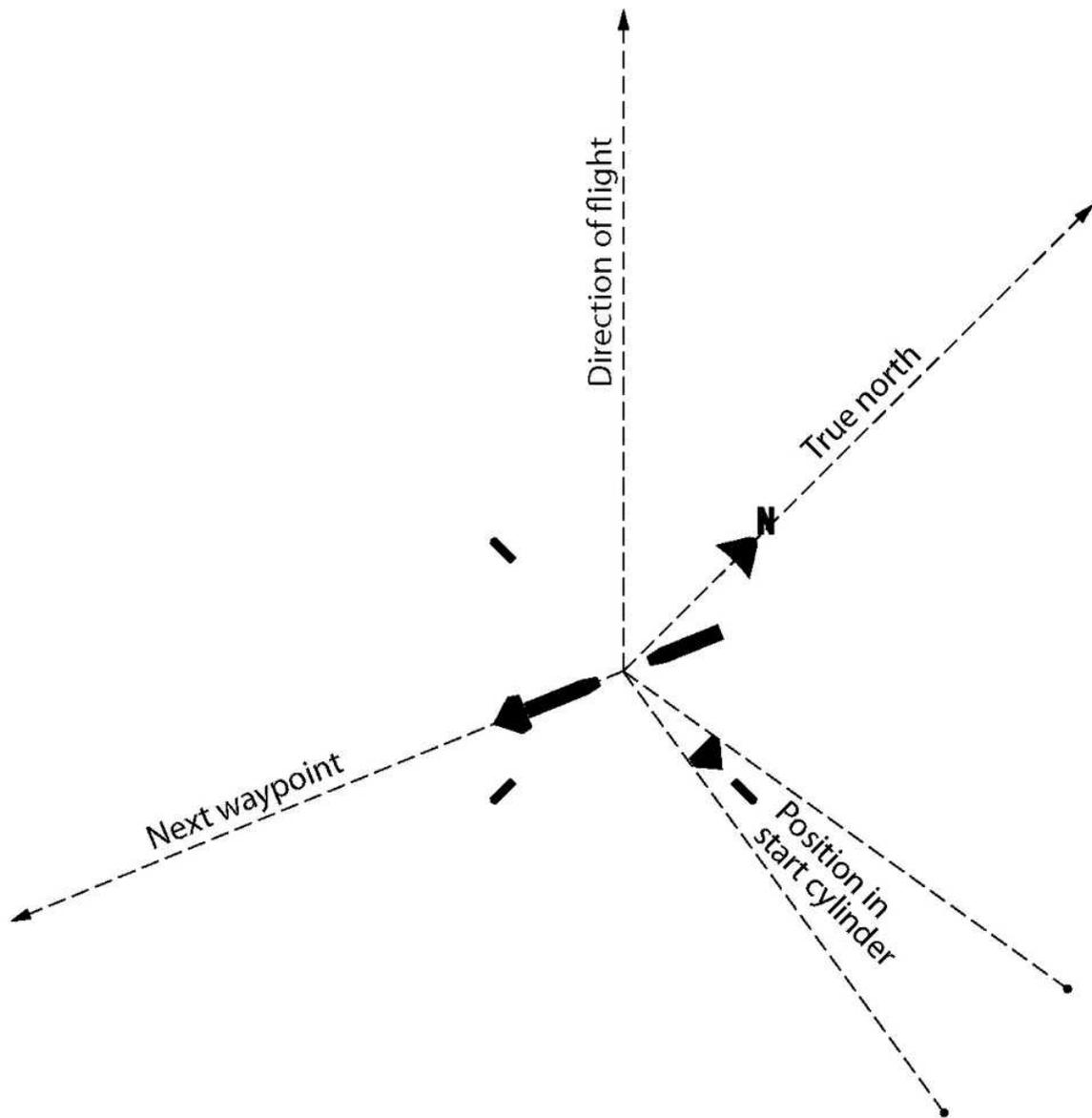
Pre-start Position Symbol

- →+ you are inside the start cylinder
 - ←+ you are outside the start cylinder
- (Flashing if you are on the wrong side of the cylinder for a successful start.)



Compass Rose: Before Start Gate Opens

If you are inside the start cylinder, the compass rose will show you your position within the cylinder, as well as the direction to the next waypoint. If you are outside of the start cylinder, the compass rose will point the way back inside.



Compass rose before start gate opens

TheElement Track will give two separate notifications of a successful competition start:

- First, a tone sounds when the countdown timer reaches 00:00:00, meaning that the competition has begun and the start gate is officially open.
- Second, a Start OK message will appear and a tone will sound when you cross the start gate correctly.

Special note: Multiple start gates

If your competition specifies multiple start gates and you've input that information when setting the route in your Element Track, the device will assume you want to take the first start gate and watch for

you to cross the start cylinder once the start time countdown reaches zero. If you wish to skip a start gate and use then next one, you must enter the route menu and re-select the first waypoint. Then the Element will reactivate the start cylinder and reset the start time countdown according to the start gate interval.

Flying after the official start

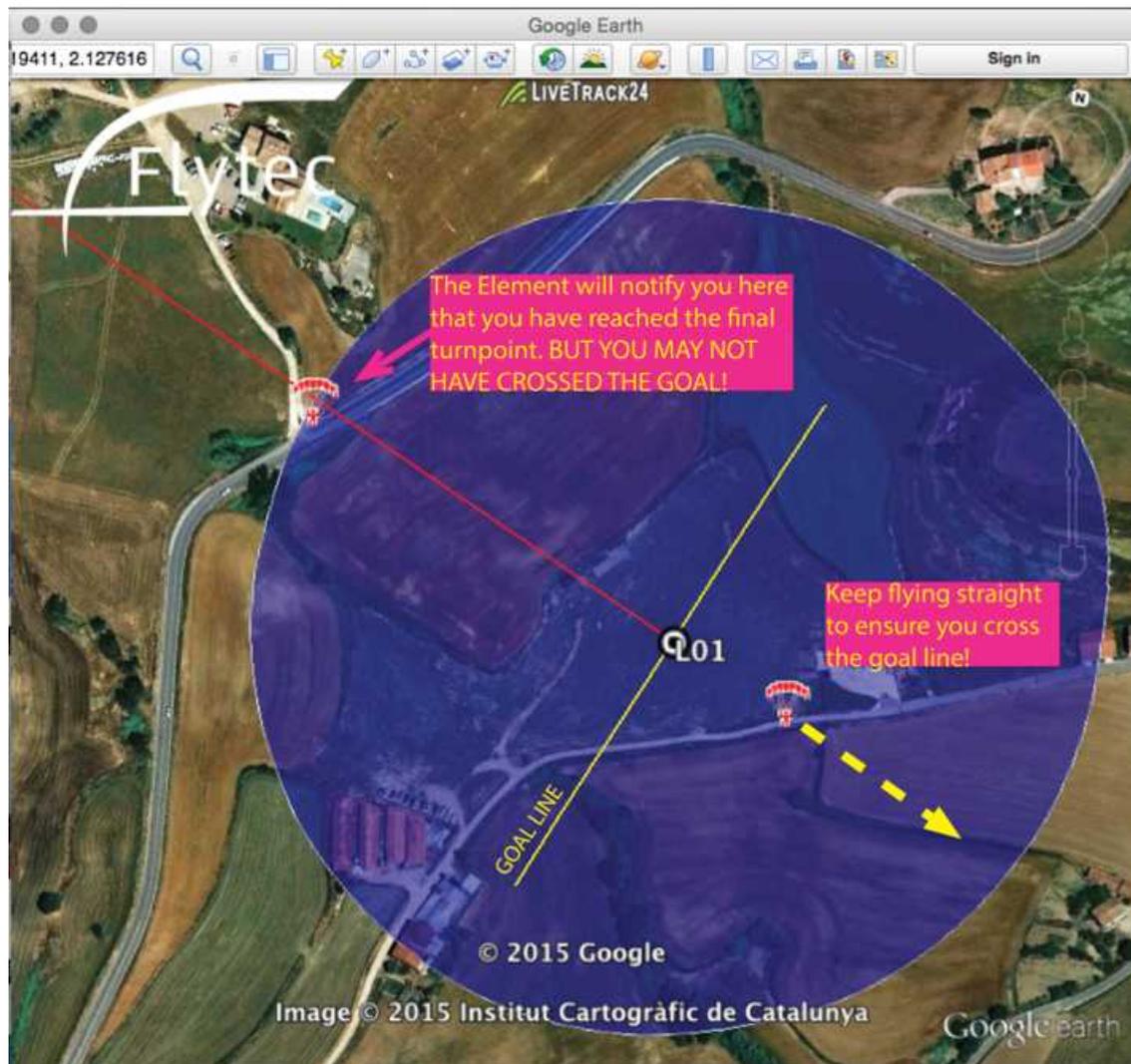
Once you cross the start cylinder, the Element Track will guide you through the waypoints just like it does during a normal navigation. At any time after the official start, use Flight Information Display Page 7 to see your elapsed race time, distance to goal and distance to the next waypoint along your task.

- Position relative to cylinder, and +/- start time
- Distance to goal (once started)
- Distance to next waypoint

Crossing the goal line

The final glide to goal can make or break you in a competition. Be sure to use Flight Information Display Page 1 to judge if you have enough altitude to glide to goal. Page 1 shows you your current glide ratio along with the required glide ratio to reach the next waypoint at the saved waypoint altitude. If your L/D ratio is higher than required, you should reach goal. If you are under the required glide ratio, you need more altitude to reach goal. For more information about this display, see flight pages. It is also important to remember how your competition defines the goal. The Element Track will notify you that you have reached the final waypoint as soon as you cross the cylinder boundary defined by its radius—but that might not satisfy the task requirements! It is always best to fly straight for a minute or two after crossing the final cylinder boundary to ensure you cross the virtual goal line defined by the task.

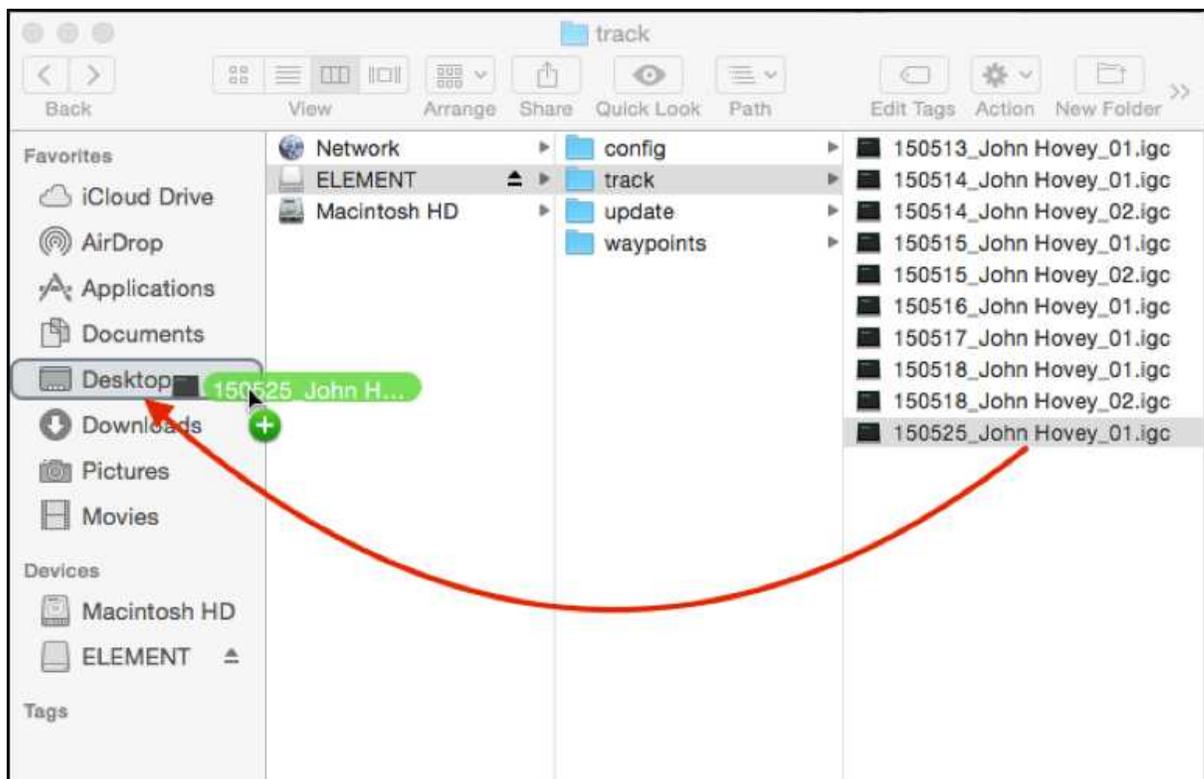




Crossing the goal line

5.4.4 After the race

Even if you are first across the goal, you can't win unless the judges can download and verify your tracklog. Bring your USB cable to the competition, and use it to connect to the scorer's computer. Drag and drop your winning IGC file onto their desktop. See you on the podium!



Downloading the track file for scoring

Note: Remember, in case of any accident where you or the judges accidentally delete your IGC file during the download, you can always manually export the flight and create another IGC file (see chapter [Flight analysis](#)^[59]).

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6 Flight analysis

Reviewing and analysing your flights with:

- [Reviewing flights on your Element](#)^[59]
- [The flight summary page](#)^[59]
- [Uploading flights to your computer](#)^[60]
- [Manually exporting flights](#)^[60]
- [Deleting flights from your Element](#)^[60]

6.1 Reviewing flights on your Element

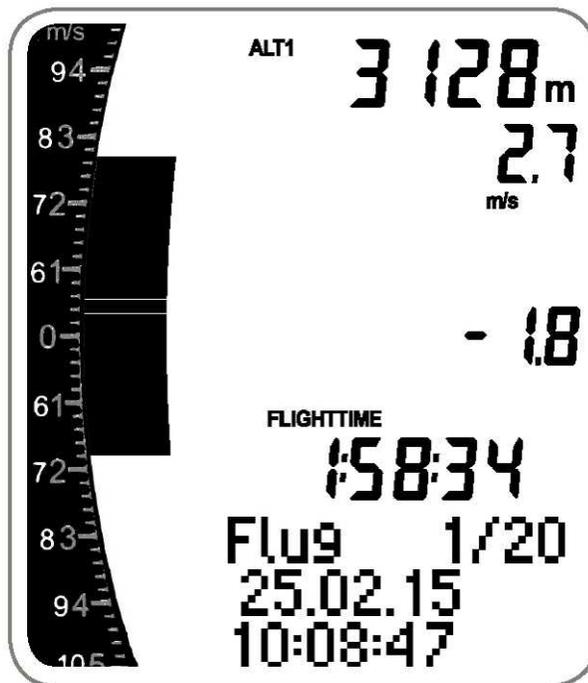
The most recent 50 flights are stored in chronological order on the Element and are available for review until you delete them. To review the summary of any flight, use the Flight Memory menu. The extended memory of your Element Track will hold additional flights, but they are only accessible using a USB connection.

1. Press and hold MENU, then use the arrow keys to select Flight memory. Press OK.
2. Use the arrow keys to select Flights. Press OK.
3. Scroll to select a flight.
4. Press OK.

6.2 The flight summary page

When you have selected a flight, a summary page displays the following information:

- Maximum value of ALT1
- Maximum climb rate of the flight
- Maximum sink rate of the flight
- Total flight time
- Position in Element's memory (most recent flight is always #1)
- Date
- Time of take-off



Flight summary page

6.3 Uploading flights to your computer

Connect the Element Track via USB (see [USB connection](#)) to a computer and get your tracks from the folder "flights". There are a number of options of how to visualise your tracks, which we have summarised on the page flight data evaluation.

Note: if you accidentally delete the IGC file while trying to upload it, do not panic. Use the manual export feature below to re-create the IGC file from the Element's memory.

6.4 Manually exporting flights

Your Element Track has a deep storage memory that will allow you to recover a tracklog even if you accidentally delete the IGC file on your computer. Follow these steps to re-create and export the IGC file from a flight:

1. Press and hold MENU, then use to select Flight memory. Press OK.
2. Use the arrow keys to select the flight summary page for the flight you would like to manually export to IGC. Press OK.
3. Confirm Export? by pressing OK. Use ESC to cancel.
4. Finally, follow the procedure above for uploading flights to your computer. In the folder named flights you will find the new IGC file for the flight you have exported.

6.5 Deleting flights from your Element

Follow these steps to delete all flight data stored on your Element Track. This procedure cannot be undone.

1. Press and hold MENU, then use to select Flight memory. Press OK.

2. Use the arrow keys to select Delete. Press OK.
3. Confirm all flights Delete? by pressing OK. Use ESC to cancel.

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7 Configuration

See the following topics to configure your Element Track:

- [General settings](#)^[63]: Set your personal preferences, units, time zone, etc.
- [Vario profiles](#)^[64]: Configure your vario
- [Audio settings](#)^[65]: Customise all acoustics of your Element Track, such as climb and sink tones
- [Speed settings](#)^[66]: For info on external wind vane sensors, airspeed calibration and settings for the stall alarm

7.1 General settings

For some of these settings you will have to enter text, view the diagram from chapter [Overview](#)^[33].

7.1.1 Pilot information

You can enter your name, aircraft type, and aircraft ID number under this menu.

1. Press and hold MENU, then use the arrow keys to select Pilot. Press OK.
2. Select a field to edit and press OK.
3. Spell out your information using to select the letters and F1 / F2 to move back and forth. Use RTE to toggle capital letters and special characters. Holding down RTE will also delete a character. Press OK.
4. Press ESC to return to the Main Setup Menu.

7.1.2 Time zone (UTC)

Your device's time and date are automatically set by GPS, however you must input your time zone in the form of an offset from Coordinated Universal Time (UTC). To look up your UTC setting, use www.worldtimeserver.com and click on your country and city.

1. Press and hold MENU, then use the arrow keys to select Instrument settings. Press OK.
2. Select Time zone and press OK.
3. Enter your UTC offset with the arrow keys. Press OK.
4. Press ESC to return to the Main Setup Menu

7.1.3 Units of measurement

The Element Track offers different units of measurement for altitude, speed, pressure, rate of climb/sink, distance, time, and coordinates. Default settings are in SI (metric) units. To select other units, follow these steps:

1. Press and hold MENU, then use the arrow keys to select Instrument settings. Press OK.
2. Select Units. Press OK.
3. Select the unit to be changed. Press OK.
4. Now select your unit preference. Press OK.
5. Press ESC to return to the Main Setup Menu.

7.1.4 Coordinate format

The Element Track uses the degrees decimal minutes format (dd° mm.mmm') as its default for GPS coordinates because it introduces fewer rounding errors. Selecting other formats may make your GPS less accurate, on the order of 20 metres. Follow the procedure above for changing units of measurement and select Coordinates. The Element supports these coordinate formats:

- dd° mm.mmm' (default)
- dd° mm' ss"
- dd.ddddd°
- UTM (coming soon in a firmware update)

7.1.5 Further customisation

Continue to [Audio settings](#) and [Vario settings](#) to further customise your Element Track to your needs.

7.2 Vario settings

The Element Track vario is highly customisable. This section explains all the possible adjustments.

Remember: when in doubt, use the default settings. How to regulate the tone of your vario is explained the page [Audio settings](#).

7.2.1 Numeric vario averaging interval

This value may be adjusted from 1 to 30 seconds. Though the default setting is 5 seconds, it may be useful to adjust the averaging interval to a longer setting. A good strategy is to set the numeric vario averaging interval to at least the time it takes you to turn a complete circle when thermalling: approximately 15 seconds or longer.

1. Press and hold MENU, then use to select Vario settings. Press OK.
2. Use the arrow keys to select Integrated vario. Press OK.
3. Use the arrow keys to select a value. Press OK.
4. Press ESC to return to the Main Setup Menu.

7.2.2 Last thermal threshold

The Element Track records thermals using readings of its numeric vario. You can adjust the threshold of the last thermal value from between 0.1 to 3.0 m/s (or 0.2 to 6 ft/min x 100). The default setting is 0.5 m/s or (1.0 ft/min x 100).

1. Press and hold MENU, then use the arrow keys to select Vario settings. Press OK.
2. Use the arrow keys to select Last thermal threshold. Press OK.
3. Then select a value. Press OK.
4. Press ESC to return to the Main Setup Menu.

7.2.3 Turbulence filter

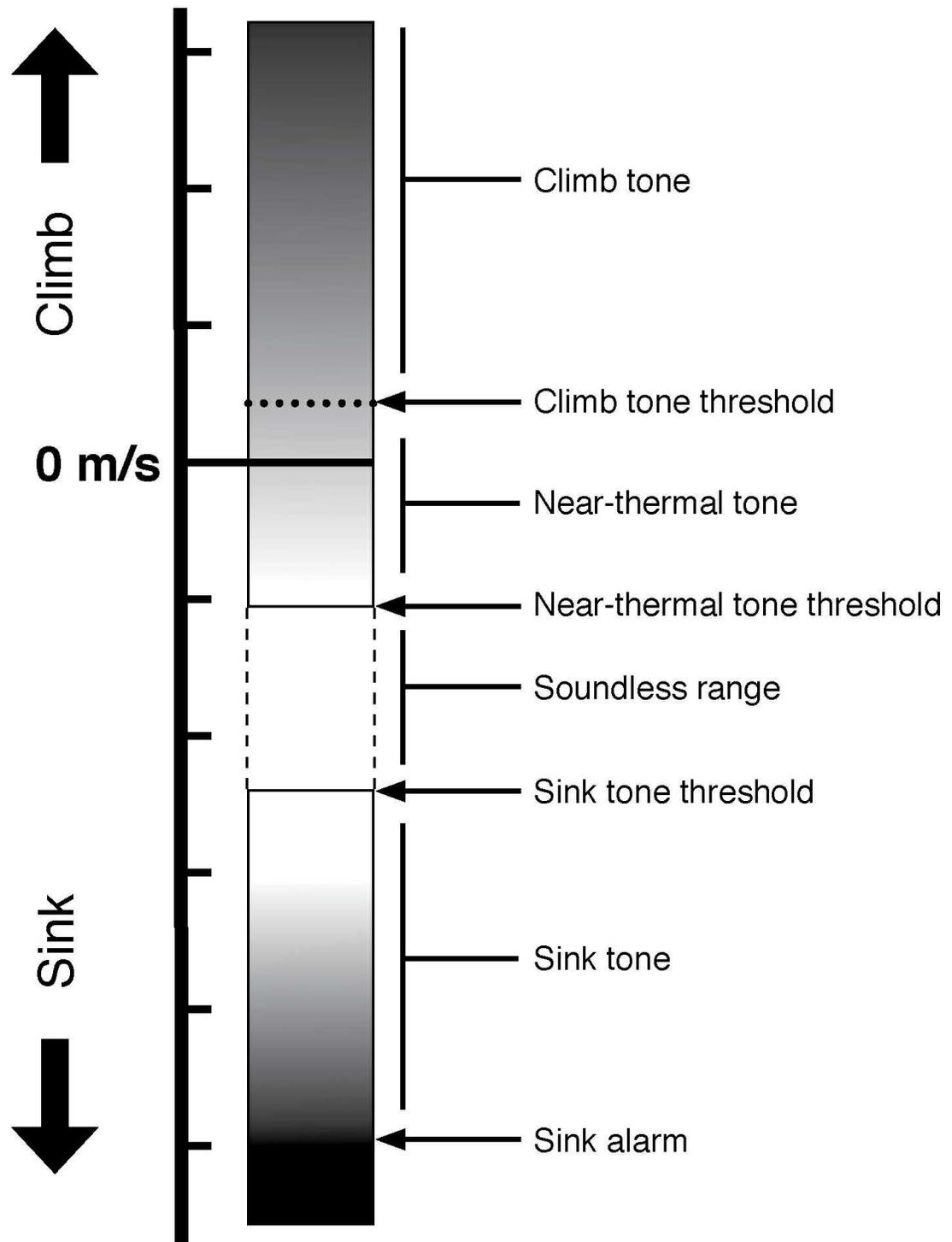
The Element Track has four sensitivity settings to filter turbulence so you get the most useful information from the instrument. The default setting is Level 1. Setting Filter amount Appropriate conditions:

| Setting | Filter amount | Appropriate conditions |
|---------|---------------|---------------------------------|
| 0 | Weak | Calm, winter flying |
| 1 | Normal | Normal flying, light turbulence |
| 2 | High | Turbulent thermals |
| 3 | Extreme | Very rough and strong thermals |

Vario filter settings

7.3 Audio settings

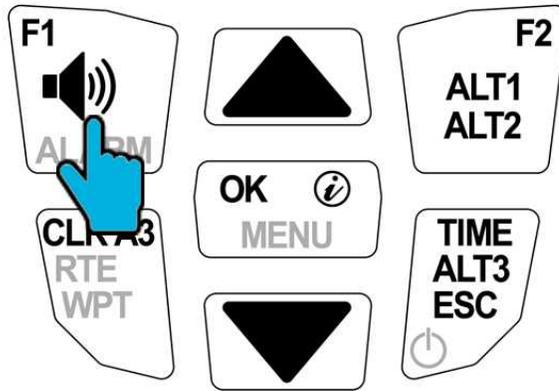
Like most all varios, the Element Track beeps when you climb and sounds a low tone when you sink. But the vario acoustics are slightly more sophisticated than that. In addition to the familiar climb and sink tones, your Element Track also features a Near-thermal Tone to help you find weak thermals and it sounds a Sink Alarm if you are sinking rapidly.



The various tones for the Element vario

7.3.1 Audio volume level

Adjust your Element's audio volume using the loudspeaker key. Pressing it repeatedly allows you to cycle through five audio levels. Audio level is indicated at the top of the display screen with the Audio Symbol.



Adjusting audio volume

| Symbol | Level |
|--------|-------|
| | Mute |
| | 25 % |
| | 50 % |
| | 75 % |
| | 100 % |

Indication of audio levels

7.3.2 Climb audio menu

Under this menu are numerous fine-tune adjustments you can make to your beeping climb tones. This section will explain them briefly. First, navigate to the Climb audio menu.

1. Press and hold MENU, then to select Climb audio.
2. Press OK.

From here, you will be given several items to adjust.

Climb threshold (default is 10 cm/s or 20 ft/min x 100)

This value sets how fast you must climb to start hearing climb tones. The Element Track is so sensitive that on some days, such as when strong thermal cycles are coming up the hill, it may sound climb tones even while you are standing around preparing to launch. You can raise this value to prevent this.

Audio mode (default is "Always")

Choose between two settings: Always or In flight. When in the default mode of Always, the Element Track will emit vario tones whenever it is switched on (and you have the audio volume level above "mute"). It can be inconvenient to hear tones when preparing your gear for flight or if you want to use your Element Track to record hike-and-fly adventures, for instance, because you won't want to hear vario tones while you walk through nature. Selecting In Flight ensures that the Element Track will only emit vario tones after it detects your take-off.

When your vario is set to In flight audio mode, you can still get a vario sound by briefly pressing the loudspeaker key. You will have vario sound for the next 20 seconds, then your Element Track will be silent again until it detects a take-off.

Climb frequency (default is 800 Hz)

You can raise or lower the frequency of the lowest climb tone to hear overall higher or lower pitched beeps.

Frequency adjustment (default is 2)

The Element Track climb tones are set to raise in frequency the faster you climb. Some pilots enjoy hearing very excited, high-pitched tones from their varios—in which case they should choose a higher number for this setting. If you want a calmer vario in strong climbs, choose a lower value.

Pitch adjustment (default is 2)

The Element Track also beeps at a faster rate when you are climbing faster. Just like the frequency adjustment, if you want your vario to beep wildly, choose a higher number for this setting. If you want a calmer vario in strong climbs, choose a lower value.

Pitch mode (default is linear)

Choose linear or exponential for this setting, which matches the number of beeps per second to the rate of climb. Exponential will give a rapidly changing pitch from 0.0 - 2.0 m/s, then gradually increasing pitch in climbs from 2.0 - 10.0 m/s.

Near-thermal threshold (default is -0.5 m/s or -1.0 ft/min x 100)

This tone can be set from -1.0 to 0.0 m/s (or -2.0 to 0 ft/min x 100) and gives you notice that you are approaching a thermal. See the [Vario settings](#) to adjust the threshold for this value. The near thermal tone is set as follows shown below. When the Near-thermal Tone is activated, the symbol ^ appears in the upper right corner of the display. This function is useful when conditions are weak and you are searching for weak thermals with very slow climb rates that might not activate a climb tone. Turn on the Near-thermal Tone and you will hear an indication whenever the Element senses the slight sink indicating you are near a weak thermal.

1. Press and hold ALARM.
2. Use the arrow keys to select PreTherm.
3. Confirm activating/deactivating the Near-thermal Tone by pressing F1.
4. Press OK.

7.3.3 Sink audio menu

This menu lets you adjust your sink tones. Sink Alarm is also located in this menu. Navigate to the Sink audio menu:

1. Press and hold MENU, then use the arrow keys select Sink audio.
2. Press OK.

From here, you will see three items to adjust.

Sink threshold (default is -0.5 m/s or -1.0 ft/min x 100)

This value sets how quickly you must be sinking in order to activate a sink tone.

Sink frequency (default is 600 Hz)

Adjust the frequency of the highest sink tone to hear overall lower or higher pitched sink tone.

Sink alarm threshold

Adjust the vario value (see [Vario settings](#)^[64]) at which your Element Track will sound the Sink Alarm, letting you know you are rapidly losing altitude. The Sink Alarm is a continuous tone telling you that you are sinking rapidly. When activated, the symbol v appears in the upper right corner of the display. To activate or deactivate the Sink Alarm:

1. Press and hold ALARM.
2. Use the arrow keys to select Sink.
3. Confirm activating/deactivating the Sink Alarm by pressing F1.
4. Press OK.

7.3.4 Stall alarm

Stall Alarm only functions when your Element Track is connected to an external sensor that provides it with airspeed data (see chapter [Speed settings](#)^[69]). When the Stall Alarm feature is activated, your Element Track will sound a loud tone if your airspeed drops below the Stall Alarm threshold. To activate or deactivate the Stall Alarm:

1. Press and hold ALARM.
2. Select Stall.
3. Confirm activating/deactivating the Stall Alarm by pressing F1.
4. Press OK.

7.4 Speed settings

For info on external wind vane sensors, airspeed calibration and settings for the stall alarm

7.4.1 External wind vane sensor

The Element Track can be connected to an external wind vane sensor, available for purchase from your vendor. Normally, the Element Track displays Ground Speed with the label GND shown on the flight screen (see [Overview](#)^[33]), but when connected to a functioning airspeed sensor the label will change to AIR and the Element Track will display airspeed instead.



7.4.2 Airspeed calibration

Airspeed can be corrected +/-50% under the Speed menu. This could be useful if the shape of your pod harness is affecting your speed sensor's accuracy, for example.

1. Press and hold MENU, then use to select Speed. Press OK.
2. Use arrow keys to select Speed correction. Press OK.
3. Use the arrow keys to enter your desired speed correction.
4. Press OK.
5. Press ESC to return to the Main Setup Menu.

7.4.3 Stall alarm

Stall Alarm only functions when your Element Track is connected to an external sensor that provides it with airspeed data. When the Stall Alarm feature is activated, your Element will sound a loud tone if your airspeed drops below the Stall Alarm threshold. To activate or deactivate the Stall Alarm see the [Audio settings](#) for the Element Track.

Stall Alarm threshold can be set to any value from 15.0 to 99.9 km/h (or from 8.1 to 53.9 kts or from 9.3 to 62.0 mph).

1. Press and hold MENU, then use the arrow keys to select Speed. Press OK.
2. Select Stall alarm. Press OK.
3. Use the arrow keys to enter your desired airspeed for the Stall Alarm.
4. Press OK.

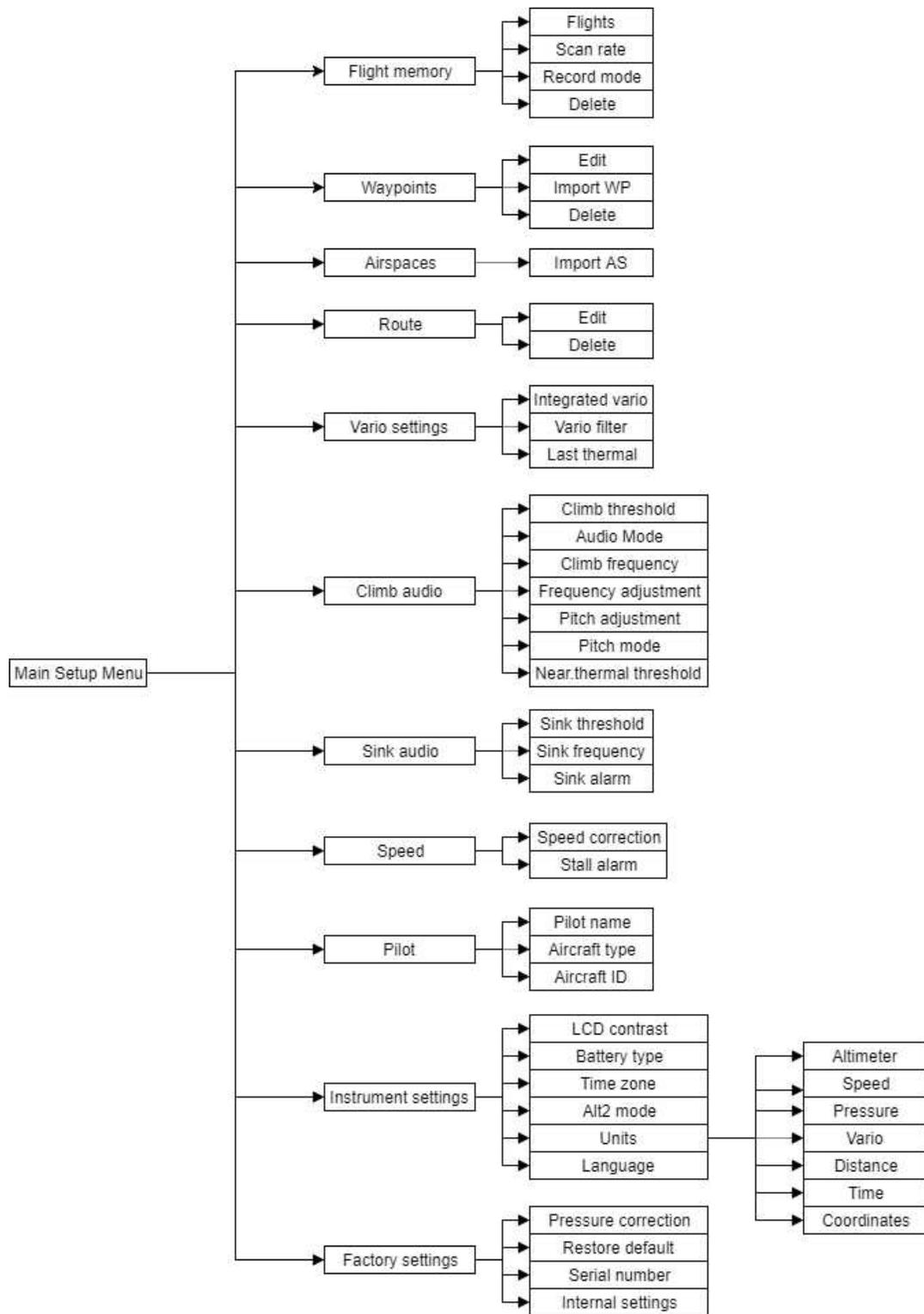
5. Press ESC to return to the Main Setup Menu.

Part



8 Menu tree

Overview of the Element Track menu, accessible by long press of the Menu key.



The Element Track menu tree.

Part



9 Technical specification

| Device | |
|------------------------|--------------------------------|
| Loudspeaker | Yes, buzzer |
| Buttons | Yes |
| Battery | 2x standard AA battery |
| Battery indicator | Yes |
| Battery autonomy | 30 h |
| Size | 138x74x21 mm |
| Weight | 182 g |
| Vario | Yes, high sensitivity |
| Pressure altitude | Yes, high precision |
| Flight storage | Yes, statistics for 50 flights |
| Operating Temp. | -15°... +50° |
| | |
| Software | |
| Languages | 7 |
| Software updates | Free |
| Units | Metric/Imperial |
| | |
| In the box | |
| Element Track | |
| Protective case | |
| Getting started manual | |
| USB cable | |

Part



10 Troubleshooting

If you have any question or problems feel free to support@naviter.com

Part



11 Notice of non-liability

This is a personal navigation assistance device only. It is not a replacement for any legally required device, method or service.

Before it is put to use it is the responsibility of any user who will use this device to become familiar with operation and safety aspects of this device. Using the system improperly could cause failure and lead to possible property damage and/or personal injury.

Naviter by Flytec assumes no responsibility for property damage, accidents, injury or death that may result from the misuse of this device/equipment. This includes any use of this device/equipment outside the scope of common sense, the User Manual, inserts and other related documentation.

Part



12 Limited Warranty

Naviter company warrants your Element Track against defects in materials and workmanship for two (2) year from date of purchase invoice. The warranty is non-transferable. Should any part of the Element Track become defective within the warranty period return the Element Track with a description of what/why it is not functioning and we will repair or replace it, at our discretion, free of charge (you pay only shipping to Flytec by Naviter).

Return the unit to:

Naviter d.o.o.
Planina 3
4000 Kranj
Slovenia

The warranty is non-transferable and only valid if Naviter determines that the system and its components have not been damaged due to improper use, been submerged in fluids, dismantled or abused. Naviter reserves the right to determine if repairs are to be done under warranty or at a nominal charge. As a proof of activated warranty you must send a copy of the purchase invoice.

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