geonaute
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KEYMAZE 500

KEYMAZE 700

DOCUMENTATION

1 / Getting started

1.1.Product description

	Button	Description
1	ESC/LAP	In MENU mode, exits the current page and returns to the previous page. Allows you to record a lap time if you are training (Keymaze 700 only).
2	ON/OFF ⏻	Hold down for 3 seconds to turn the watch on/off. If the watch is on, press briefly to activate/deactivate backlighting. Hold down for 15 seconds to reset the watch.

3	MODE	Scroll through the different menus: EXERCISE MODE (EXERCISE screen), MAP MODE (MAP screen, if activated), COMPASS MODE (COMPASS screen, if activated), MAIN MENU, LOCATION MODE (LOCATION screen).
4		Location of the GPS aerial. The aerial must, as far as possible, face the sky for optimal signal reception.
5	▼ Down arrow	Navigates through the menus. In EXERCISE mode, accesses the different training screens. In MAP mode (if activated), zooms in. In LOCATION mode, displays your position in UTM coordinates or latitude/longitude.
6	OK	Confirms a selected option, or a data entry. Launches/cancels training when in EXERCISE mode.
7	▲ Up arrow	Navigates through the menus. In EXERCISE mode, accesses the different training screens. In MAP mode (if activated), zooms out. In LOCATION mode, displays your position in UTM coordinates or latitude/longitude.
8		LCD screen with backlighting (see ON/OFF button)
9		Waterproof IPX7 case (30 minutes at a depth of 1 metre)

	The battery icon shows the power level remaining in the watch's internal battery. When the icon shows four bars, the battery is full. When the battery is charging, the elements inside flash
	The training stopwatch icon will be displayed when the stopwatch is in use.
	GPS satellite signal reception icon. The icon is always displayed (not flashing) if the watch receives a GPS signal which is strong enough to establish reliable positioning. This icon MUST be displayed BEFORE recording a route.

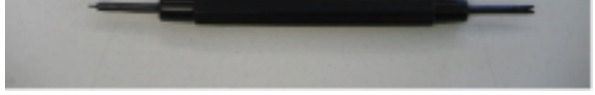
USB cable connection.
When plugging in the cable, be sure to turn the connector round the right way.
The metal cable guide pin must be able to slide freely into the hole to the bottom-right of the socket.

PC-Keymaze connecting cable

Heart strap (Keymaze 700 only)

Changing the strap

Equipment needed



i The strap and tool may differ slightly depending on the date when you buy your Keymaze.

2 - Procedure

Using the tool supplied, remove the strap. To do this, you need to release the pins connecting the strap to the Keymaze casing.

Insert the tool between the strap's attachment points and the strap.

You need to lever down so that the spring in the pin compresses: the strap detaches.

Take the new strap and put the pin into the casing at the top of the strap. Position the pin in one of the holes in the watch.

Using the tool, compress the spring in the pin and position the pin in the other hole.

If the pin is correctly positioned in both holes, the strap is correctly attached. You can then pull gently on the strap to check that it is firmly attached.

i If you have trouble changing the strap, we advise you to visit the workshop at your nearest DECATHLON store. A technician will help you to change it.

1.2.first use

1.2.1. Charging your Keymaze

This wrist GPS uses a 750 mAh Lithium-Ion battery. You should charge it fully before first using it.

1. Turn on your PC

2. To charge the battery, connect one end of the USB cable to one of your PC's active USB ports, and the other end to your KeyMaze 500/700 GPS. If the Keymaze 500/700 is off, the message BATTERY CHARGING IN PROGRESS appears on the GPS screen.

3. When the KeyMaze 500/700 is fully charged, the battery indicator is completely full (if the device is on) or the words BATTERY CHARGING COMPLETE are displayed (if the device is off). Disconnect the device from the socket to avoid damaging the battery.

Important: most malfunctions indicate that the battery is not charged. To extend battery life, ensure that you charge and charge it down as fully as possible. You should expect battery performance to reduce over time. Only charge the device with the USB cable provided.

It takes around three hours for the battery to charge completely. As a rule of thumb, here are the battery standby times according to the different activated options:

- the Keymaze is receiving 3D satellite signals (at least four signals detected), GPS guidance activated, heartrate measurement and lighting **deactivated**: 11 hours
- the Keymaze is receiving 3D satellite signals (at least four signals detected), GPS guidance activated, heartrate measurement activated, lighting **activated**: 9 hours
- the Keymaze is not receiving satellite signals, GPS guidance deactivated, heartrate measurement deactivated, lighting deactivated: 25 hours

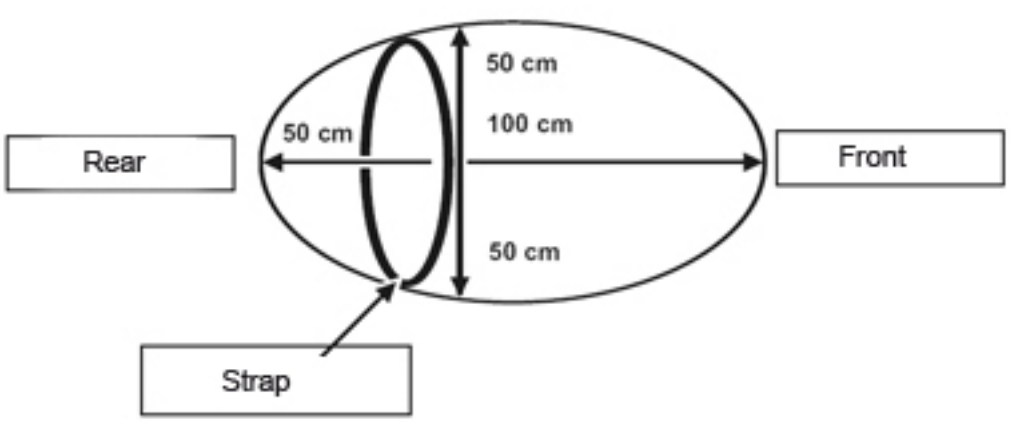
Recycling: The "crossed-out bin" symbol indicates that this product and the batteries it contains cannot be disposed of with household waste. They are subject to specific sorting. Take the batteries and your unusable electronic product to an authorised collection area for recycling. Recycling your electronic waste will protect the environment and your health.

recycling

1.2.2. The chest strap (continuation of strap instructions)

Important: heartrate can only be measured using the Keymaze 700.

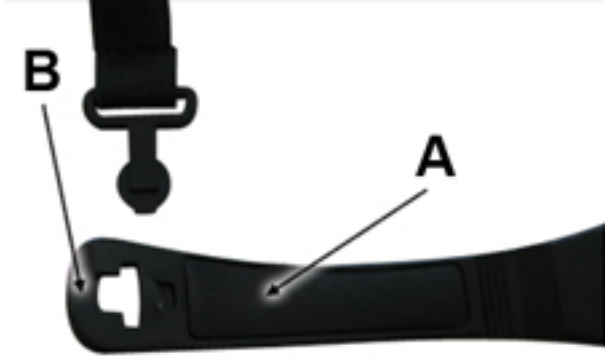
Normal conditions of use
The chest strap must be positioned around your thorax (chest). When correctly placed, it sends heartrate information to the watch. When placed in the cradle (see diagram), the watch displays your heartrate in order to control and optimise your fitness or training programme.

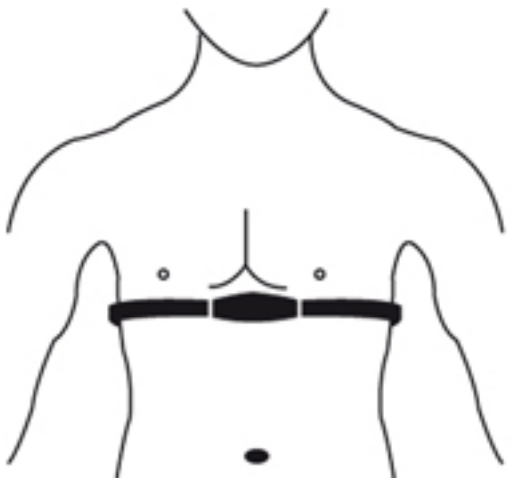


Restriction on use

The chest strap does not have a coded transmitter.

i heartrate measurement can be influenced by electromagnetic fields (high-voltage power lines, electric fencing, etc). Other heartrate monitor users within 1 metre of you may also cause interference. Move away from any sources of disturbance.





FITTING

The chest strap serves as a sensor and transmitter. It measures the differences in potential created by your heartbeat at the surface of your skin. It then transmits this information to the watch by radio signal. The quality and accuracy of its measurements and comfort during use depend on it being correctly positioned. The sensors (A) are the black rubber surfaces on both sides of the central section.

Fitting procedure:

- Moisten the sensors with water, saliva or a conductive aqueous gel to ensure that contact is good.

- Insert one of the ends of the elastic into one of the holes (B) designed for this purpose.

- Fit the strap around your chest then position the strap just below your pectoral muscles. One of the sensors should be under your heart and the other under your right pec.

- Adjust the length of the strap so that it fits firmly but comfortably. The strap should not move if you jump or move your arms.

- Check that is positioned correctly by moving the watch to within 50cm.

The heart symbol should be displayed. If it does not appear:

- Move the watch closer to the strap.

- Adjust the position of the strap and fully moisten the sensors.

- Check battery level, particularly in the strap.

IMPORTANT:

- Avoid positioning the sensors in overly hairy areas.

- In cold, dry climates, the strap takes several minutes to function correctly because the sensors require a film of sweat to make contact with the skin.

- When measurements start, the watch may indicate very high values for around 20 seconds. This is caused by the algorithm starting up. The display will stabilise at the correct values after this period of time.

- Be careful when inserting the clip of the elastic strap into its hole in the strap. Hold the pin while passing your finger behind the strap.

BATTERY

If the heartrate indications become incoherent or the heart symbol is not displayed on the screen when the watch is positioned in the cradle, you may need to change the chest strap battery. You can change the strap battery yourself without the need for specialist tools.

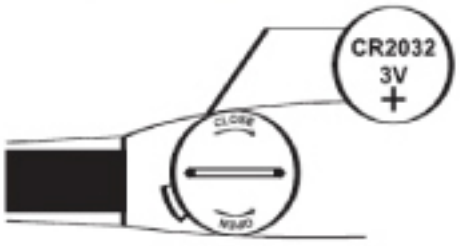
Battery replacement procedure:

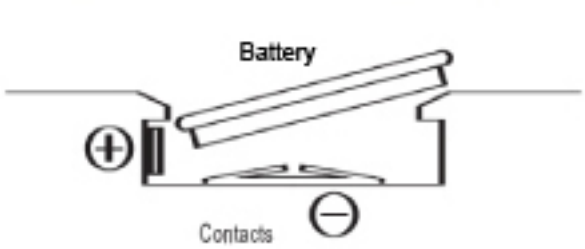
- Unscrew the battery compartment cover using a coin and then remove it

- Remove the old battery by tapping the opposite side of the strap.

- Replace the used battery with a 3V CR2032 lithium battery without touching the two terminals (the battery may charge down), with the + terminal (printed surface) towards the top.

- Carefully replace the cover, ensuring that the waterproof seal is correctly positioned, then turn it a quarter of a turn to the "**CLOSE**" position. If you have any problems, contact your retailer.





1.2.3. Configuring your Keymaze

Before you use your device, you are advised to adjust the settings according to your preferences.

- a) Setting the time zone to display the time

So that the Keymaze automatically sets the right time, it needs to correctly detect satellite signals. The device is currently set to GMT (Greenwich Meridian Time). You may need to change the reference meridian. To do this, proceed as follows:

1. Press the MODE button several times until you reach the MAIN MENU.

2. Using the 5 and 6 buttons, choose the SETTINGS option and confirm using OK.

3. Using the 5 and 6 buttons, choose the SYSTEM SETTINGS option and confirm using OK.

4. Using the 5 and 6 buttons, choose the SETUP TIME option and confirm using OK.

5. In the TIME ZONE field, press the OK button. Select the appropriate city (reference time zone) from the scrolling menu using the 5 and 6 buttons and confirm with OK.

6. To activate or deactivate summer time, go to the DAYLIGHT SAVING field using the 5 and 6 buttons and press OK. Select YES or NO using

the 5 and 6 buttons and confirm by pressing OK.

7. To activate or deactivate 12/24 hour display, use the 5 and 6 buttons to select the TIME FORMAT option and confirm with OK. Select your preferred option using the 5 and 6 buttons and confirm by pressing OK.

- b) Setting the units of measurement

- 1. Press the MODE button several times until you reach the MAIN MENU.
- 2. Using the 5 and 6 buttons, choose the SETTINGS option and confirm using OK.
- 3. Using the 5 and 6 buttons, choose the ACTIVITY SETTING option and confirm using OK.
- 4. Using the 5 and 6 buttons, choose the SET UNITS option and confirm using OK.
- 5. Press OK. You can set the distance measurement unit in the UNITS field. You can choose between STATUTE (imperial system: miles and miles per hour), METRIC (metric system: metres and kilometres per hour) and NAUTICAL (nautical system: nautical miles and knots). Select your preferred option using the 5 and 6 buttons and confirm by pressing OK.

A reminder about units of measurement

Metric system	Imperial system	Nautical system
1 kilometre	0.62 miles	0.54 nautical miles
1.61 kilometres	1 mile	0.87 nautical miles
1.85 kilometres	1.15 miles	1 nautical mile

Metric system	Imperial system	Nautical system
1 kilometre/hour	0.62 miles/hour	0.54 knots
1.61 kilometres/hour	1 mile/hour	0.87 knots
1.85 kilometres/hour	1.15 miles/hour	1 knot

- 6. Select the SPEED UNITS option using the 5 and 6 buttons. Press OK. The first setting displays your speed, either in terms of your pace per kilometre or in conventional terms. Select your preferred option using the 5 and 6 buttons and confirm by pressing OK. The second setting allows you to view climbing speeds. Press OK. You can choose between a measurement per minute or per hour. Select your preferred option using the 5 and 6 buttons and confirm by pressing OK.
- 7. Select the COORDINATION option using the 5 and 6 buttons and confirm by pressing OK. Your location coordinates are displayed either in degree-minutes or in degree-minutes-seconds. Select your preferred option using the 5 and 6 buttons and confirm by pressing OK.

- c) Setting your personal settings

- 1. Press the MODE button to go to the MAIN MENU.
- 2. Using the 5 and 6 buttons, choose the SETTINGS option and confirm using OK.
- 3. Using the 5 and 6 buttons, choose the USER SETTINGS option and confirm using OK.
- 4. Use the USERNAME option to select your username. Press OK. An alphabet appears. Write your name letter by letter using the 5 and 6 buttons

and confirm each letter using OK. Press ESC to quit username entry. At the end of your name select the Ã character and confirm by pressing OK.

- 5. Use the GENDER option to select your sex. Press OK. Select your preferred option using the 5 and 6 buttons and confirm by pressing OK.
- 6. Use the BIRTH DATE option to enter your date of birth. First set the **year**, then the **month** and then the **day** of your birth.

i Even if you are using metric units of measurement, your date of birth will be entered in the year/month/date format.

Enter settings using the 4-point procedure above.

- 7. Use the WEIGHT option to select your weight. Press OK. A list of figures appears. Enter your weight figure by figure using the ▲ and ▼ buttons and confirm each figure using OK. When your weight is correct select the Ã character and confirm by pressing OK.

Metric system	Imperial system
1 cm	0.44 inches
2.54 cm	1 inch

Metric system	Imperial system
1 kg	2.21 lbs
0.453 kg	1 1b

i If you selected the STATUTE option when setting the units of measurement, you will have to enter your height in inches and your weight in pounds!

As a reminder, one pound = 0.453 kg and 1 inch = 2.54 cm.

- 8. Use the HEIGHT option to select your height. Press OK. A list of figures appears. Enter your height figure by figure using the ▲ and ▼ buttons and confirm each figure using OK. When your height is correct select the Ã character and confirm by pressing OK.

Once you have completed your settings, the display should look like this:

1.2.4. Installing Geonaute Software

Step 1 : download the latest version of "GEONAUTE SOFTWARE" on www.geonaute.com
(direct link : http://www.geonaute.com/files/software/GeonauteSoftware.exe)
Uniquely available on PC

Step 2 : install Geonaute software

2 / Using the product

2.1.Navigating through the menus

Print this paragraph : Navigating through the menus

Welcome screen

OK

Contrast settings

▲ higher contrast

▼ lower contrast

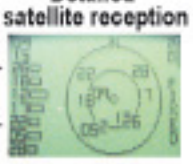
ESC/LAP

goes automatically to

Mode

satellite reception

Detailed satellite reception



Daily data

Training screen n°1

Training screen n°2

Training screen n°3

Training screen n°4

OK

OK

OK

OK

OK

Start training

Temporarily stop training

ESC/LAP

Save training data

OK

ESC/LAP

NO + OK

YES + OK

Record a lap time

Mode

Map screen (if activated)

▲ ZOOM +

▼ ZOOM -

Mode

Compass mode (if activated)

Mode

Main menu

Mode

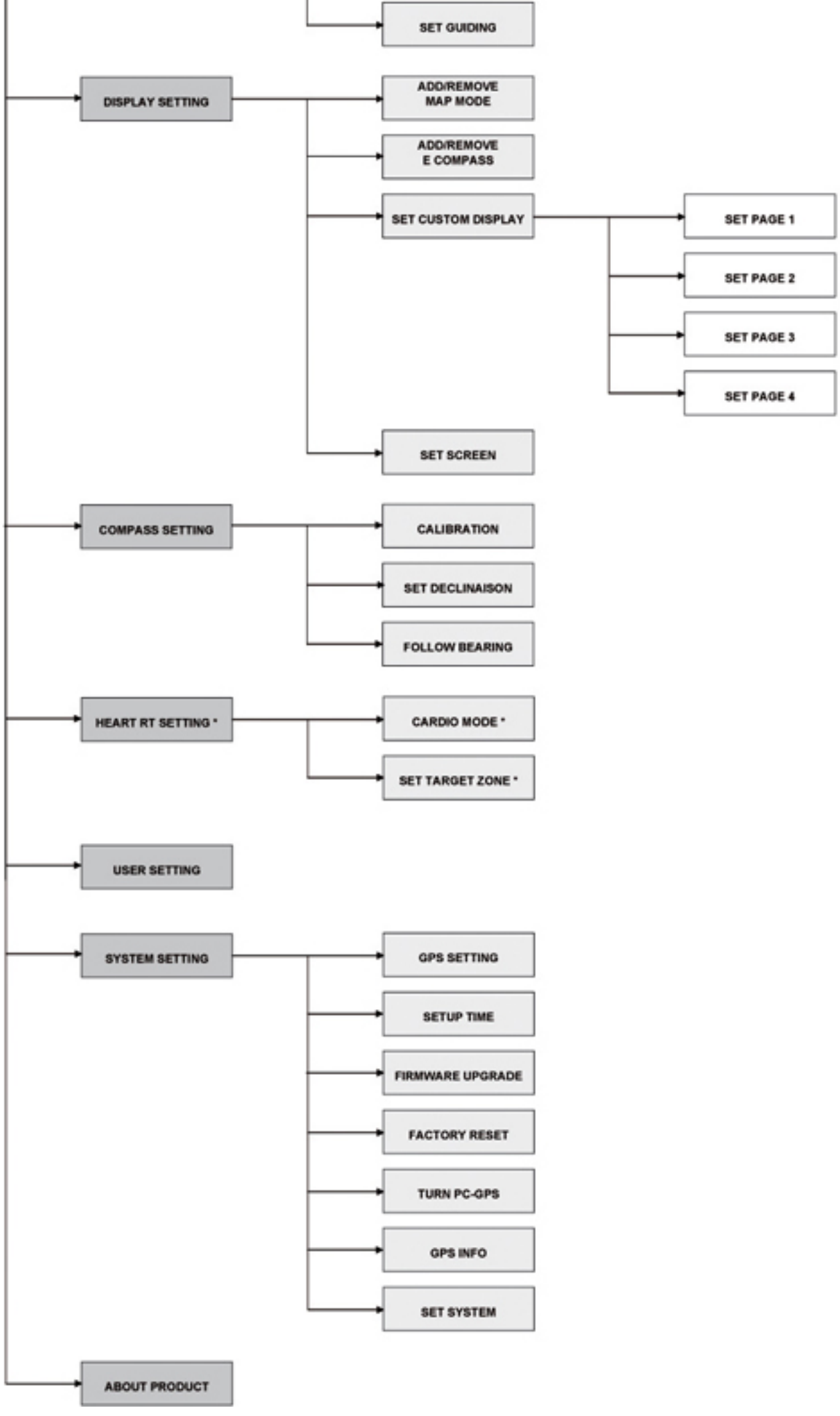
Location screen

Location screen in UTM coordinates

Mode

2.2.Person-machine interface

2.2.1. GPS Functions

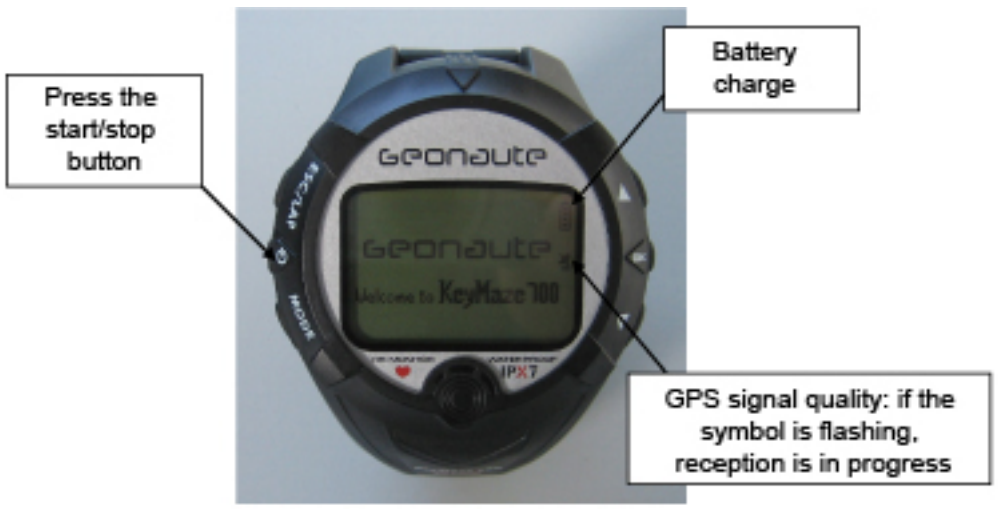

SET GUIDING
DISPLAY SETTING
ADD/REMOVE MAP MODE
ADD/REMOVE E COMPASS
SET CUSTOM DISPLAY
SET PAGE 1
SET PAGE 2
SET PAGE 3
SET PAGE 4
SET SCREEN
COMPASS SETTING
CALIBRATION
SET DECLINAISON
FOLLOW BEARING
HEART RT SETTING *
CARDIO MODE *
SET TARGET ZONE *
USER SETTING
SYSTEM SETTING
GPS SETTING
SETUP TIME
FIRMWARE UPGRADE
FACTORY RESET
TURN PC-GPS
GPS INFO
SET SYSTEM
ABOUT PRODUCT

FUNCTIONS	THE DIFFERENT FUNCTIONS EXPLAINED
ABOUT PRODUCT	Display the version of the internal software (firmware)
ACTIVITY SETTINGS	Training session settings
ADD/REMOVE E-COMPASS	Activate/deactivate compass function
ADD/REMOVE MAP MODE	Activate/deactivate map function
ALERTS	Manage the different alerts
AUTO HOLD	Set the stopwatch temporary stop setting
CALIBRATION	Calibrate the compass
CALORIES	Adjust the settings for estimating calories expended
CARDIO MODE	Activate/deactivate heartrate monitor
COMPASS SETTINGS	Set compass characteristics
CREATE NEW ROUTE	Create a new route
DATA RECORDING	Set the frequency with which the gps records points
DELETE ALL	Delete all training files/routes/waypoints in the memory
DISPLAY SETTINGS	Display settings
FACTORY RESET	Reset the keymaze to factory settings
FIRMWARE UPGRADE	Update the keymaze's internal software
FOLLOW BEARING	Set the azimuth to guide the compass
GO BACK	Return to the starting point
GO TO WAYPOINT	Go to a waypoint
GPS INFO	Display information on the quality of the satellite signal
GPS SETTING	Adjust gps settings
HEART RATE ALERT	Alert according to heartrate
HEART RT SETTINGS	Adjust heartrate measurement settings
LAPS	Adjust lap time recording settings
LIST ALL	Display all routes
LIST TRAINING FS	List all training files
LIST WAYPOINTS	List all recorded waypoints
NAVIGATION	Orientation and navigation
ROUTES	Route management
SAVE WAYPOINT	Save a waypoint
SET CUSTOM DISPLAY	Set the information screens
SET DECLINAISON	Adjust compass declination
SET GUIDING	Define settings to ignore certain waypoints
SET PAGE 1	Set screen 1
SET PAGE 2	Set screen 2
SET PAGE 3	Set screen 3
SET PAGE 4	Set screen 4
SET SCREEN	Adjust screen settings (light and contrast)
SET SYSTEM	Adjust system settings (beeps, menu language, battery saver)
SET TARGET ZONE	Define settings for the use of a target zone
SET UNITS	Set units of measurement (distance/speed/coordinates)
SETTINGS	Function settings
SETUP TIME	Adjust time settings (time zones, 12/24 hour mode)
SPEED ALERT	Alert according to speed
SYSTEM SETTINGS	Adjust internal gps settings
TIME/DIST ALERT	Alert according to distance or time
TRAINING FILES	Training files
TRANSFERT DATA	Upload data to computer
TURN PC-GPS	Use the keymaze purely as a gps aerial
USER SETTINGS	Adjust personal user settings (name/sex/date of birth, etc.)

2.3.major functions

2.3.1. Measuring a sports session and displaying data from a journey on the watch

Press the start/stop button to start the watch. A welcome message appears on the screen. In the top-right of the screen, a symbol indicates battery charge status: it is fully charged if there are four bars. Below this symbol there is a picture of a satellite aerial: if the device detects enough satellite signals, the aerial does not flash.



After a few seconds, you are taken to the next screen:

The screen shows the number of satellites currently located (in this case 7) and the minimum number needed for a good signal (4). In this example, reception is excellent because it has located more signals than necessary. The satellite reception symbol stops flashing.

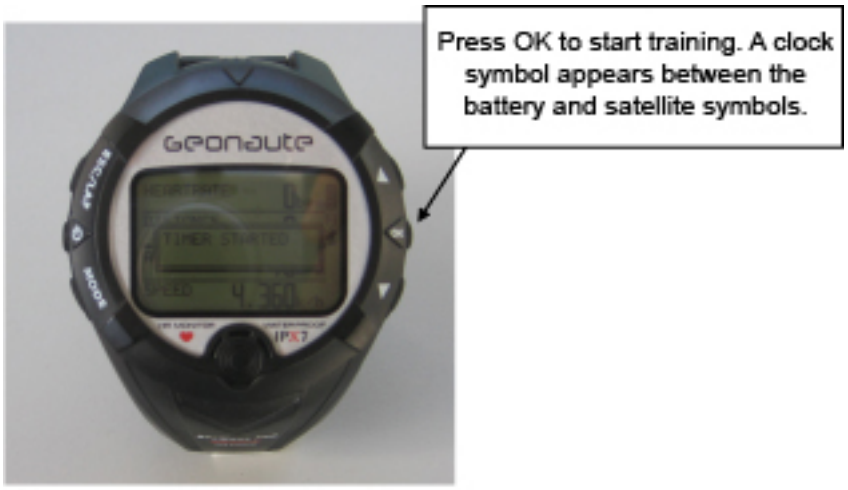
i The quality of the satellite signal depends on the environment. For example, if you are in a wooded area, a steep valley or near buildings, reception may take a little time, and measurement accuracy will not be as good. In general, accuracy is to within around ten metres.

As soon as satellite reception is good enough, the Keymaze automatically displays a training screen, like this one:

You can now start your session!

Starting training

Important: if you have a Keymaze 700 and you want to record your heart rate, you need to activate this function.



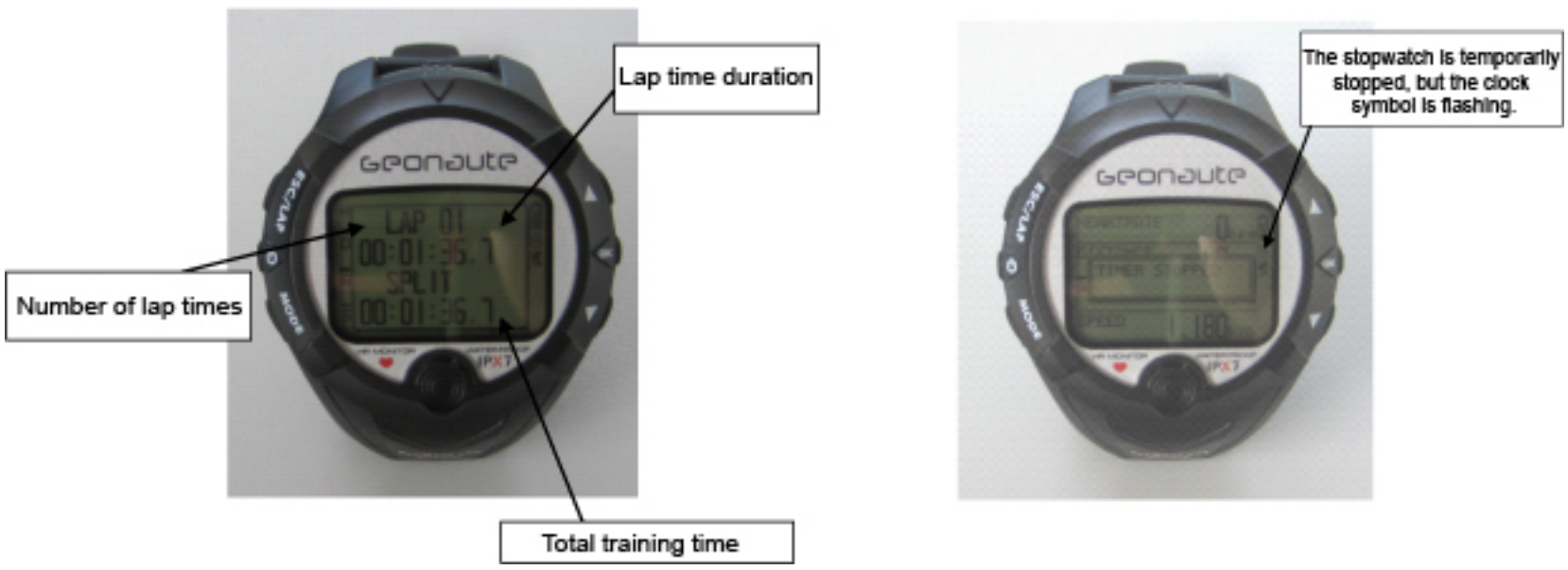
The message "TIMER STARTED" is displayed. The exercise stopwatch starts ^. You can scroll through the different training screens be pressing q and p.

You can modify all the settings for all the training screens. See the relevant chapter to personalise them so that they suit your requirements.

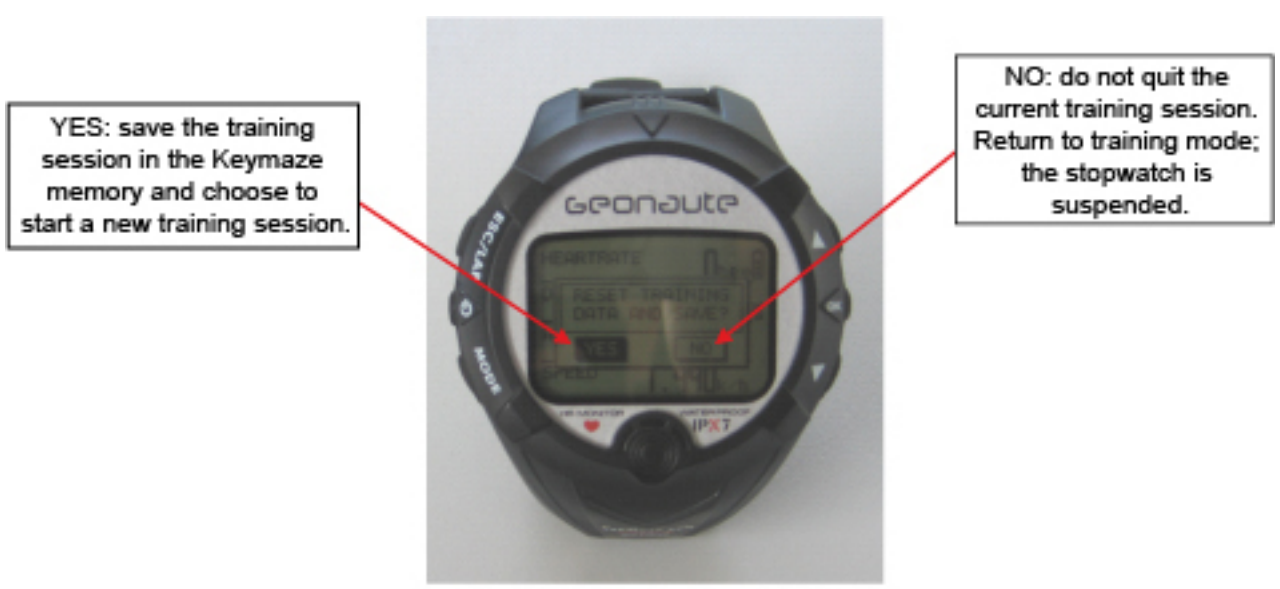
If you want to record a lap time, press ESC/LAP (Keymaze 700 only).

Important: you cannot view lap times until you have finished training.

To temporarily stop your training session press OK, and to resume it press OK again.



If you want to stop training for good, press OK and then ESC/LAP. The Keymaze asks you if you want to save your training session.

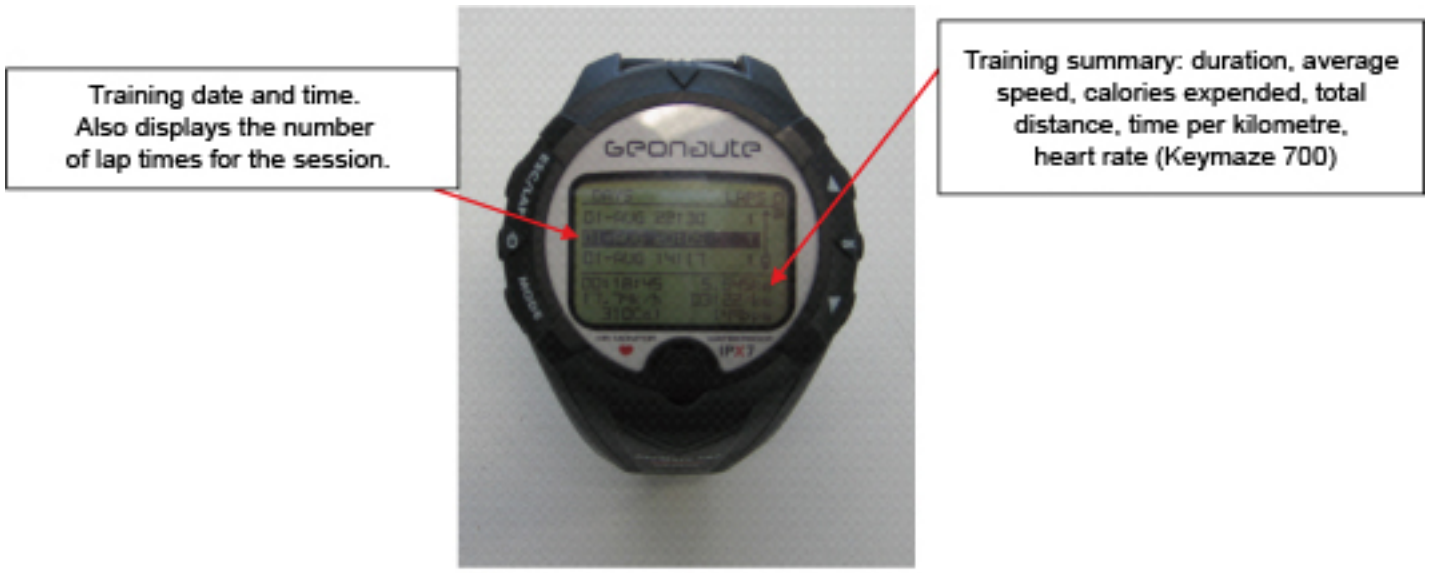


Important: you cannot definitively quit a training session without saving it.

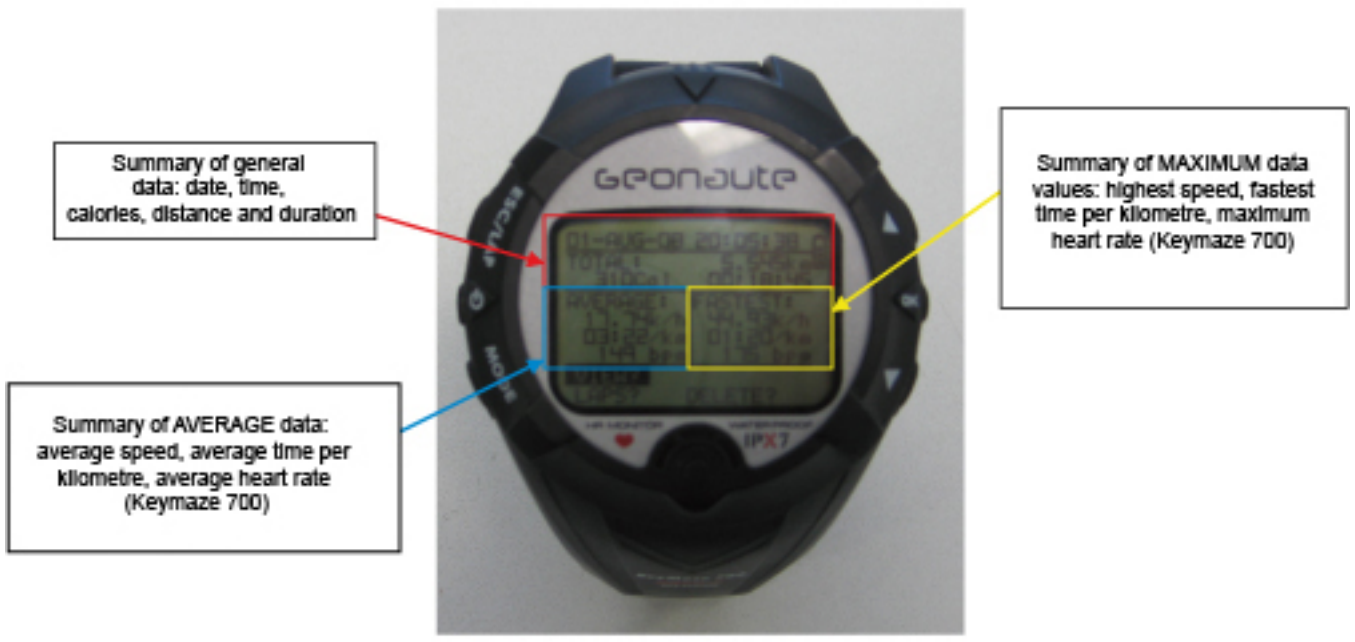
Displaying the results of your training session

To display the results of a training session on your Keymaze, go to MAIN MENU. Select TRAINING FILES (the first option) by pressing q and p and confirm with OK. Select LIST TRAINING FS (the first option) by pressing q and p and confirm with OK.

The screen displays the list of all saved training files. Select the one you want by pressing q and p.



Press OK to access all training data:



You can display the journey outline by selecting VIEW, and all saved lap times by selecting LAPS (Keymaze 700 only).

2.3.2. Transferring your training data to Geonaute Software

After recording a training session on your Keymaze, you can display it with your computer software: duration, distance, speed, altitude and heart rate curves (Keymaze 700), etc.

Connect the Keymaze to your computer

i It is very important to follow the procedure below carefully to establish a connection between your GPS and your computer.

Plug the cable into the back of your GPS

The socket for plugging in the connecting cable is at the rear of the GPS. Push the jack all the way into the two holes.

Connect the USB end of the cable to a USB socket.

i If you have correctly installed the driver to your computer, the computer will recognise that a new piece of hardware has been connected. You should hear a "ding dong".

Turn on your GPS

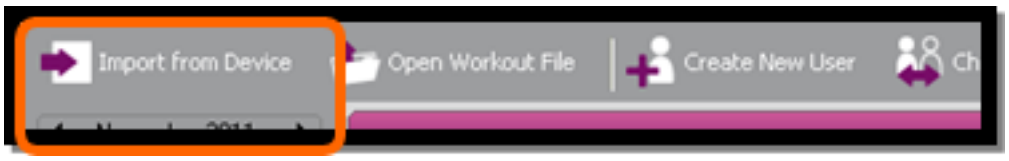
In MAIN MENU select the TRANSFER DATA option and press OK.

- The Keymaze is now connected to your computer.

Start the computer software

You can transfer the sessions stored in the KEYMAZE to the PC using the GEONAUTE SOFTWARE (download at

www.geonaute.com).
Connect the KEYMAZE to the USB port of your PC and switch the product on. Select the "import from the device" option. The sessions stored on the KEYMAZE will then be available for viewing in "MY SESSIONS".



2.3.3. Preparing a route and transferring it to the Keymaze

i You must first have connected the Keymaze to your computer.

a) Plug the cable into the back of your GPS

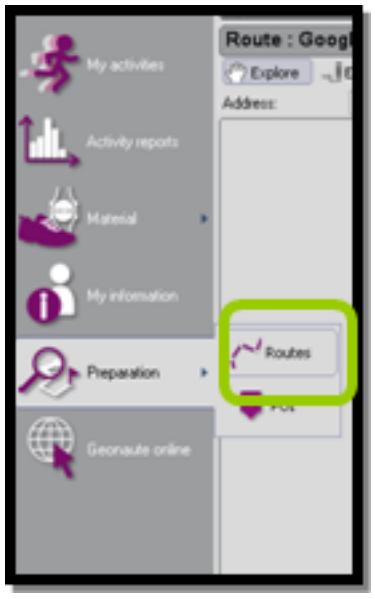
The socket for plugging in the connecting cable is at the rear of the GPS. Push the jack all the way into the two holes.

- b) Connect the USB end of the cable into a USB socket.

If you have correctly installed the driver to your computer, the computer will recognise that a new piece of hardware has been connected. You should hear a "ding dong".

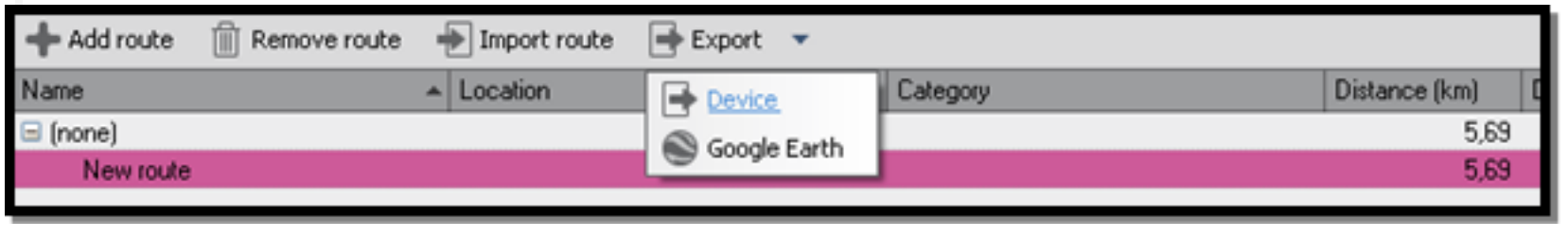
- c) Turn on your GPS

- d) In MAIN MENU select the TRANSFER DATA option and press OK.

- 

-Add a course-in preparing your track from Geonaute Software.

-Click on "EXPORT / DEVICE", then choose your product, then click "OK" to transfer your data



The HOME-DECAT file is now stored in the Keymaze. You can check it by going to MAIN MENU, NAVIGATION, ROUTES, LIST ALL.

iThe filename appears in the lower part of the screen (FROM PC) because it has been uploaded from the software. If you create a route manually, it appears in the MANUAL zone.

2.3.4. Letting the Keymaze guide you along a prepared route

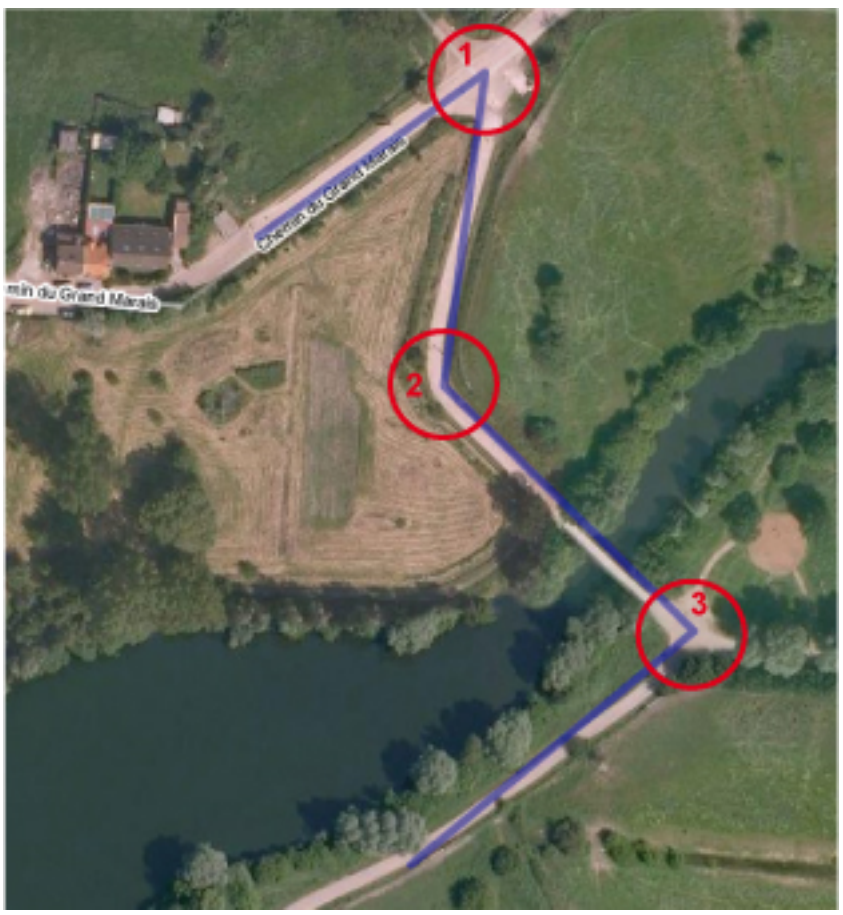
Having uploaded a route to you Keymaze (or having prepared it manually), you can use your GPS to be guided.

To travel your route, you have the choice of either actually visiting all the points which make it up (scrupulously observing the path), or of covering it as quickly as possible. According to the choice you make, you need to set the distance based on which the Keymaze switches to the next point.

a) Select the distance based on which the Keymaze guides you to another point

In MAIN MENU, select SETTINGS, ACTIVITY SETTING, SET GUIDING to choose the distance based on which the GPS switches to the next point (SWITCH DISTANCE). You have the option of setting this distance to between 25 metres and 500 metres.

Here is an example:



On this path, you will have to visit points 1, 2 and 3. Let's suppose that you have set the parameter SWITCH DISTANCE to the value 50 metres. Each black circle corresponds to a zone with a radius of 50 metres, centred on the waypoint. As soon you enter this zone, the Keymaze will assume that you have reached the waypoint. It will then switch to guiding you to the next point.

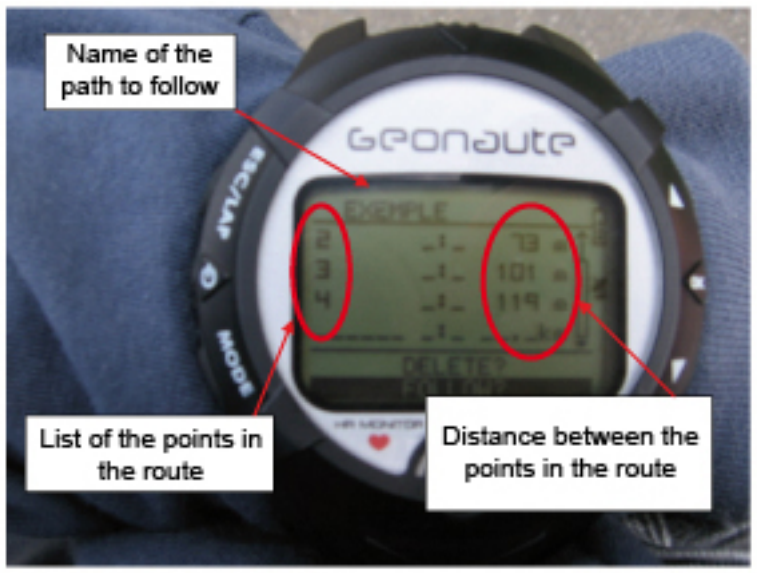
i For sports involving slow speeds (walking, running, etc.), it is best to choose 50 metres.

The "SWITCH CORRECTION" option allows you to activate (ON) or deactivate (OFF) correction.

b) Select the route which you want to activate

From MAIN MENU (press MODE several times to return to it), select NAVIGATION, then ROUTES and LIST ALL. You will see at the top of the screen the manually created routes (MANUAL), and at the bottom the uploaded routes (FROM PC). Using p and q, select the file which you are interested in and press OK.

The screen shows the list of points which make up this route. At the bottom of the screen you have the option to DELETE the file or to FOLLOW the route. Select FOLLOW using p and q and confirm with OK.



We see that the route comprises 4 waypoints, named 1, 2, 3 and 4. You can complete the route either from 1 to 4 (via 1, 2, 3 and 4), or from 4 to 1 (via 4, 3, 2 and 1). Choose the direction you prefer.

i You can complete your route in one direction or the other. If you have chosen to follow a manually created route, select "TO 1" if you want to complete the route via points 4...1. If you select "TO 4", you will travel the route via points 1...4.

If you have chosen to follow a route uploaded from the software, select "BACKWARD" to go via points 4...1 and "FORWARD" to go via points 1...4.

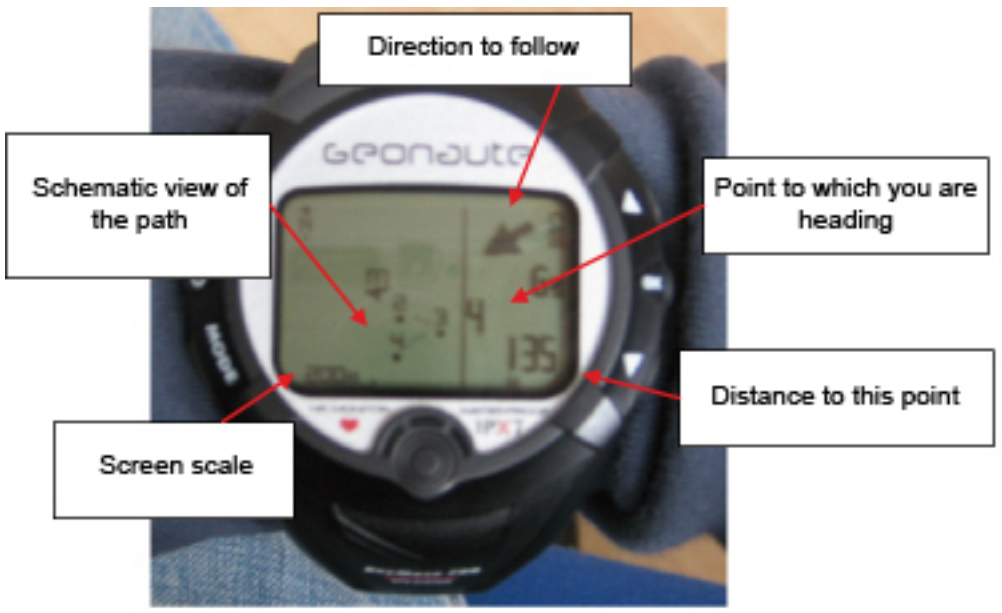
You can record the training data during the route. You are advised to save the data so that you can consult it after the route. Select the option you prefer.

c) Follow your route on the watch

Now that your route is activated, you can use your Keymaze to guide you.

Important: when you stop, the Keymaze's direction arrow points in a random direction. Start walking and the direction arrow will then indicate the correct direction to follow. So, when you start to follow a route, you may be told to take a random direction, but you will quickly be pointed in the right direction.

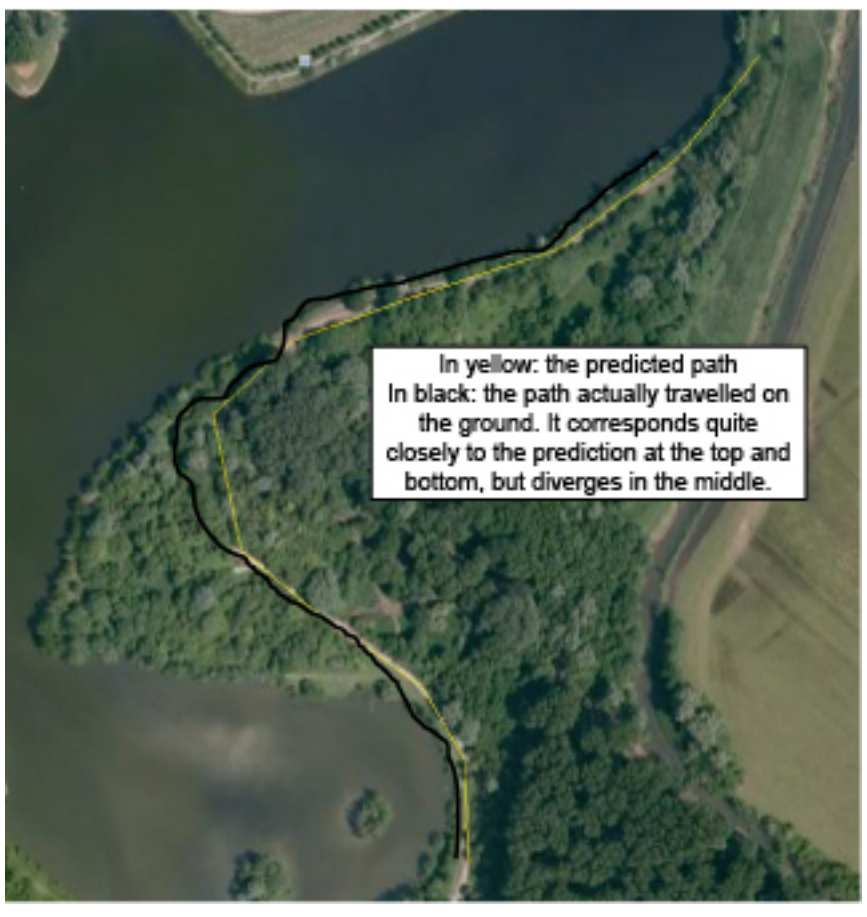
In our example, you will first go to point 4.



By pressing the p and q buttons you can increase or reduce the screen scale: the route will be displayed in greater or lesser detail (your actual route is shown as a dotted line). You can vary zoom levels according to the route you are following. This function is very important because it gives you a good idea of the route. If you zoom out too far the route displayed will be shrunken and illegible; if you zoom in too close you will not see a big enough picture.

iSometimes the route that you actually follow on the ground will not correspond exactly to the one you had predicted (a route uploaded from the software or created manually). Sometimes, when preparing a route using Google Earth, some paths may be hidden by vegetation (wooded areas, for example). Here is an example. When preparing your route, you noticed that part of the path was hidden by forest. You assumed that the path curved.

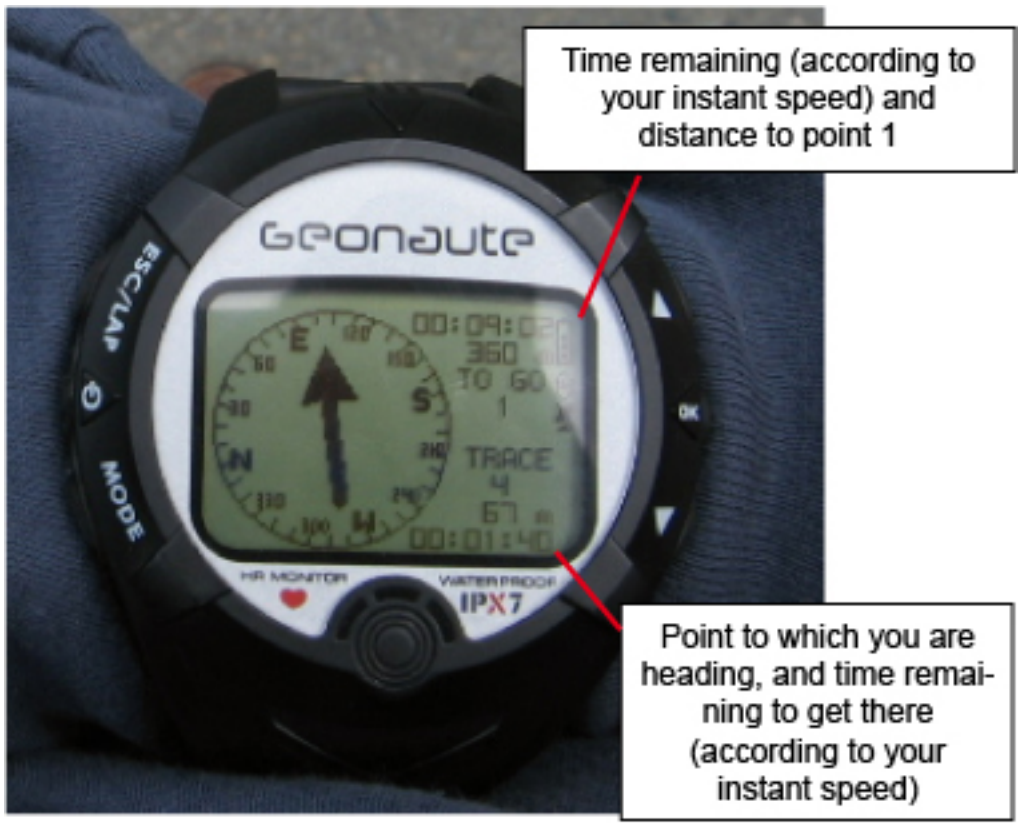
However, when you travel the journey, the path will probably not correspond exactly to your predictions.



When you are travelling your path and you stop (or your speed is too low), the Keymaze will continue to guide you using the compass mode. The compass will tell you the direction to follow using the last known GPS location.

Depending on the type of guidance being used, a **G** will be displayed under the direction arrow if the GPS gives you the direction, or a **C** if the compass is used. The device automatically switches between GPS guidance and compass guidance.

If you press "MODE", you go to a guidance screen with a compass. This mode enlarges the direction arrow, but the route is no longer displayed.

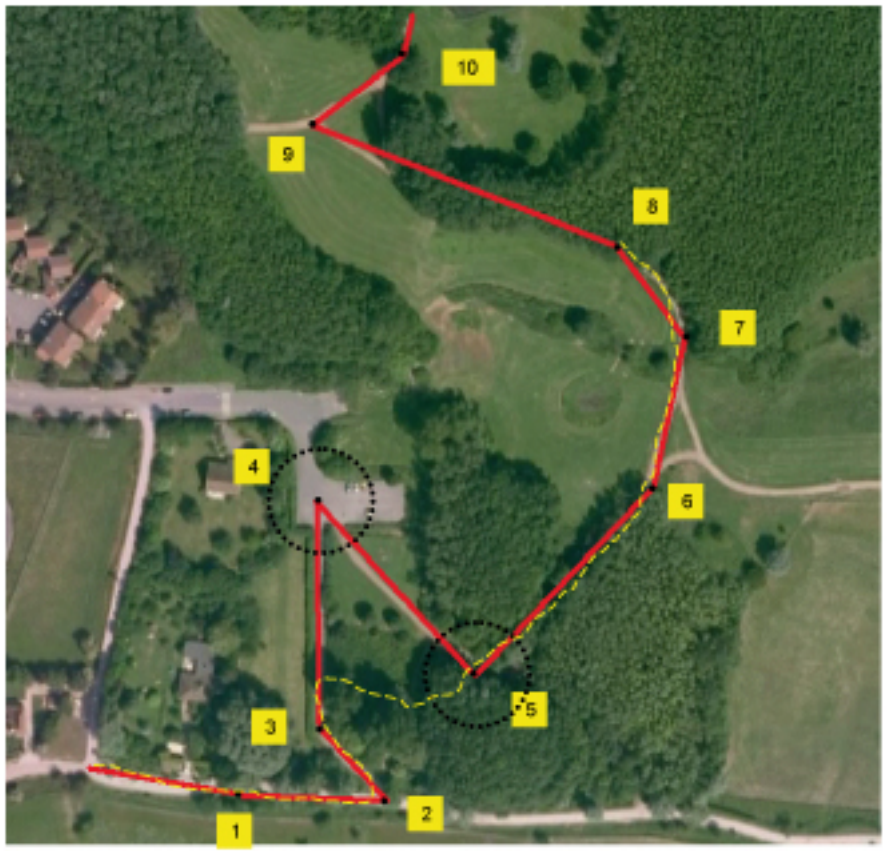


Press "MODE" several times to return to the map screen. When you approach your next point (the distance depends on the parameter set above: SWITCH DISTANCE), the Keymaze will automatically switch to the next point.

However, you can decide to jump to some waypoints by pressing "OK", or to return to other points by pressing "ESC/LAP" (only in map display). This will be useful if, for example, one or more waypoints are going to be impossible to reach, or if you change your mind mid-route.

For example:

You have prepared a route (red segments) and it has been uploaded to the Keymaze. The figures represent the waypoints. The black circles around points 4 and 5 indicate these points' "zone of influence" (SWITCH DISTANCE parameter): as soon you enter this zone, the Keymaze will assume that you have reached the trackpoint and it then displays guidance data for the next point. The yellow dotted curve indicates your real route followed on the ground.



You have visited points 1, 2 and 3. You then decided not to go via point 4, but to use a small path to reach 5. You never enter the zone of influence of point 4, so it is best to ask the Keymaze to guide you to point 5. You will then enter the zone of influence of point 5 and the Keymaze will guide you to point 6.

At the end of your route, the message "REACH GOAL!" appears on the screen: you have completed your route. You can then save your training data.

You must also deactivate the navigation option. To do this, go to MAIN MENU, NAVIGATION and select "STOP ROUTE". **This operation can also be useful if you want to deactivate guidance before arriving at your destination.**

2.4.Firmware

Print this paragraph : Firmware

MAIN MENU

iThe main menu gives you access to all Keymaze functions and settings. At the bottom of this screen you can see the date and time.

Associated submenus:

- TRAINING FILES
- NAVIGATION
- TRANSFER DATA
- SETTING

2.4.1. TRAINING FILES

This menu allows you to manage all your training files.

Associated submenus:

- LIST TRAINING FS
- DELETE ALL

2.4.1.1. LIST TRAINING FS

Select this option to access the list of training files. They are ranked from newest to oldest.

By selecting a file with the ▼ and ▲ buttons then confirming with OK, you have access to all data from your training session. Three options are available: VIEW (graphic view of the route), LAPS (analyse lap time data) and DELETE (delete this file).

You have the option of graphically displaying the shape of your route by selecting VIEW:

i To get a useful view of your route, zoom in and out on the display using the ▼ and ▲ buttons. To return to the previous screen, press MODE.

The LAP option lists the lap time data (if you recorded any and if you have a Keymaze 700):

iCardiac data is displayed if you have a Keymaze 700. By pressing OK, you see the track for the lap time. To get a useful view of your track, zoom in and out on the display using the ▼ and ▲ buttons.

Press ESC to return to the previous screen.

You can use the DELETE option to delete the displayed file.

Select YES if you do want to delete everything and NO to return to the menu. The NO option is selected by default.

iIf you have deleted your file, it will be impossible to recover it.

2.4.1.2. DELETE ALL (delete all training files)

This option allows you to delete all the training files on your Keymaze. A confirmation message is displayed on the screen. Select YES if you do want to delete everything and NO to return to the menu. The NO option is selected by default.

iIf you have deleted your files, it will be impossible to recover them.

2.4.2. NAVIGATION (Manage navigation functions)

This menu gives you access to all functions linked to the management of routes and points and to the go back function.

Associated submenus:

- ROUTES
- SAVE WAYPOINT
- GO TO WAYPOINT
- GO BACK

2.4.2.1. ROUTES (Access route management functions)

Associated submenus:

- CREATE NEW ROUTE
- LIST ALL
- DELETE ALL

2.4.2.1.1. CREATE NEW ROUTE

Use this option to create a route (in other words a set of linked waypoints).

You must first of all give a name to this route. Go to the EMPTY field using the 5 button. Then press OK. Use the 5 and 6 buttons to select the letters and confirm with OK. At the end of your name use the **Ã** character and confirm by pressing OK.

You then need to select the points which will make up your route. Press OK to access all WAYPOINTS stored on the Keymaze. Select the ones which you are interested in using the 5 and 6 buttons and confirm each point by pressing OK.

When you have selected all the points you want, press ESC or MODE to leave the route creation option.

At the bottom of the screen, you have the DELETE option with which you can delete this route, and the FOLLOW option, which allows you to begin your route from one of the points which make up your route.

İBefore creating a route, the WAYPOINTS must be stored in the Keymaze 700 memory.

2.4.2.1.2. LIST ALL (List of all routes created)

The top part of the screen (MANUAL) indicates the routes which you have created manually. The bottom part of the screen (FROM PC) lists the routes imported from the software.

You can select a route using the 5 and 6 buttons and confirm with OK. The details of the route will then be displayed.

Select DELETE to delete the route or FOLLOW to follow it (see the section entitled "I let the Keymaze guide me along a prepared route").

2.4.2.1.3. DELETE ALL (Delete all routes)

Use this function to delete all routes in your Keymaze.

iIf you have deleted your routes, it will be impossible to recover them.

2.4.2.2. SAVE WAYPOINT

In the flag there is the symbol associated with this point and its name. By default, the points are given the symbol n and a number as a name. You can change the symbol and name of this point.

Using the ▲ and ▼ buttons, go to the n symbol and confirm with OK. A list of symbols appears. Select the one which you want.

Using the ▲ and ▼ buttons, go to the name of the point and confirm with OK. An alphabet appears. Select the letter which you want. Continue in the same way to select the other letters to make up the name of the point. When the name is complete select the Ã character and confirm by pressing OK. The name can contain up to 6 letters.

Under the flag the coordinates of this point and its altitude are displayed. Although you can modify them, you don't have to. However, the altitude can be corrected if you note for example that it is not exact (by referring to a hiking map, or an information board).

Once all details are correct, go to CONFIRM? and confirm with OK. The point is stored in the Keymaze.

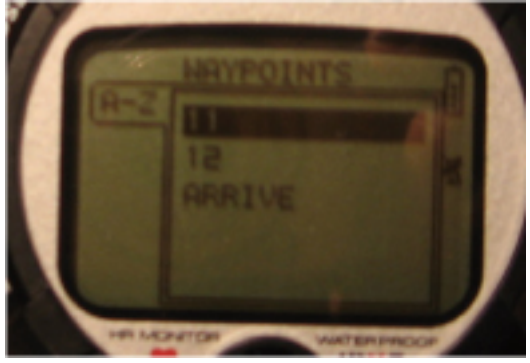
iThe coordinates which will be stored depend on the quality of the GPS signal. Even if the signal is very strong, there will always be a little inaccuracy. A point recorded at the same place on different days will not have exactly the same coordinates. Inaccuracy ranges from 10 to 30 metres.

2.4.2.3. GO TO WAYPOINT (Waypoint management)

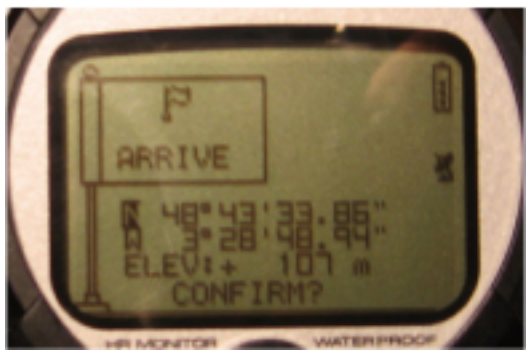
i We assume that the MAP MODE AND E-COMPASS functions are activated. Go to MAIN MENU/SETTINGS/DISPLAY SETTING.

2.4.2.3.1. LIST WAYPOINT (List all waypoints)

Sous menus associés :
- LIST WAYPOINTS
- DELETE ALL



All waypoints stored on the Keymaze are displayed in alphabetical order. When you select one you are taken to a screen like this:



If you select the GOTO? option the Keymaze will display a direction arrow so that you can find this point from your current location. Under the arrow a letter G is displayed if guidance is in GPS mode, or a C is guidance is in compass mode. It also shows the distance remaining.

iThe Keymaze cannot guide you from a location without movement. It then goes automatically to compass mode (C): the direction which you have to follow is calculated according to your last known GPS position. When you start moving again, guidance reverts back to GPS mode (G). It is important to have activated compass mode and to have calibrated it.

When you press MODE a compass will be displayed. The needle will guide you to your destination. To stop navigation to the waypoint, press MODE to return to the NAVIGATION menu and select the STOP GOTO option.

You can select DELETE? to delete the waypoint.

2.4.2.3.2. DELETE ALL (Delete all waypoints)

With this option you can delete all waypoints in your Keymaze.

iIf you have deleted your waypoints, it will be impossible to recover them.

2.4.2.4. GO BACK (Return to start of route)

By activating this option, you can redo your last training session in reverse. You will be guided in real time by a direction arrow and a compass (by pressing MODE). To stop the GO BACK function, press MODE to return to the NAVIGATION menu and select the STOP GOTO option.

The Keymaze always gives a direct route (the shortest path from one point to another as the crow flies). Pay close attention to your environment in order to get the best guidance. The screen displays the direction to follow and the distance remaining.

The time remaining to complete the route is calculated according to the distance remaining and your average speed so far.

2.4.4. SETTINGS

This menu gives you access to all your Keymaze settings: activity settings, personal settings, display options, etc.

Associated submenus:
- ACTIVITY SETTING
- DISPLAY SETTING
- COMPASS SETTING
- HEART RATE SETTING
- USER SETTING
- SYSTEM SETTING
- ABOUT PRODUCT

2.4.4.1. ACTIVITY SETTING

Associated submenus:
- CALORIES
- LAPS
- DATA RECORDING
- SET UNITS
- AUTO HOLD
- ALERTS
- SET GUIDING

2.4.4.1.1. CALORIES (Settings to measure your calories expended)

In this option you can set your type of activity. Activities are categorised as "seated", "standing" and "jumping" (WALKING, HIKING, RUNNING, BIKING, BY TIME: no particular activity). It is important that you select the activity which best approximates the one you are going to do, so that the calories expended calculation is realistic. If you do not find your activity in the list, try to associate it with a position.For example, for horse riding choose BIKING (you are sitting down); for cross-country skiing choose RUNNING (you are standing up).

In the TRAINING LEVEL field, enter the energy level of your training: VERY LOW, LOW, MIDDLE, HIGH or VERY HIGH.

By way of an example, here is a table to help you to choose your training level.

Level	Example

VERY LOW	I never play any sport. I am resuming an activity after a long period of inactivity. **I do not want to force myself.**
LOW	I play sport occasionally. I am not very fit. **I want a light exercise.**
MIDDLE	I play sport quite regularly. I am coming back from injury. **I want a moderate exercise**.
HIGH	I play sport regularly. I am beginning to target high performance.**I want an intense exercise.**
VERY HIGH	I play sport very regularly. I am aiming for a very high level. **I want a very intense exercise.**

Finally you can indicate if you are carrying any extra weight (EXTRA WEIGHT): backpack, bike, skis, etc.

2.4.4.1.2. LAPS (Setting lap time recording)

iThis option is only available on the Keymaze 700.

This option allows you to automatically record a lap time when you have covered a certain distance, or trained for a certain length of time.

OFF: function deactivated (no automatic lap times recorded).

DISTANCE: lap times recorded according to a set distance. Enter a value in the DISTANCE field. For example, if you enter 2kms, a lap time will be recorded every 2 kilometres.

BY TIME: lap times recorded according to a set period. Enter a value in the LAP TIME field. For example, if you enter 30 mins, a lap time will be recorded every 30 minutes.

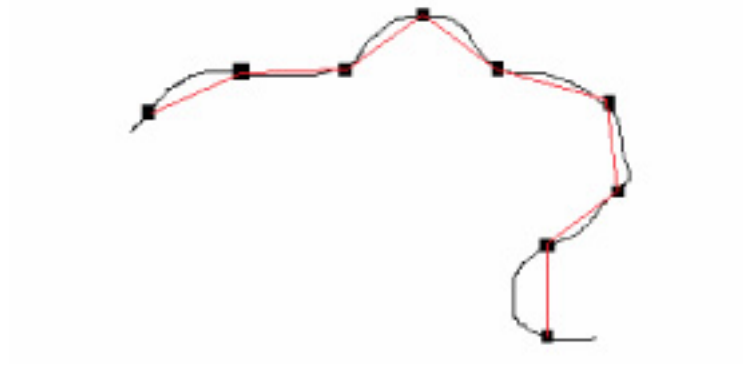
iAll lap times and associated data can be viewed in the software.

2.4.4.1.3. DATA RECORDING (Data recording frequency)

Use this option to adjust how often the Keymaze records positions in order to store your route. You can store data every second, or specify a personal length of time.

This setting is important because it determines the "recording accuracy" of your route. A value which is too high will mean that your route is recorded with incomplete bends, for example.

Example: in the path below, the real route is in black. The Keymaze records a point every 5 seconds (for example). Some bends are incomplete in the route recorded by the GPS (in red).



At the bottom of the screen you can see the number of points available in the Keymaze memory to record your route, and the recording time.

iIf you choose a recording period over one second, you will save memory and be able to record longer routes. Use this option if you do not have much memory left, or when you need to record very long routes. Don't forget to take account of your travelling speed.

2.4.4.1.4. SET UNITS (Choose units of measurement)

Use this option to change the units of measurement. You can therefore choose:

- UNITS (units of distance): Three options are available:

  STATUTE: display in feet or miles per hour (imperial system)

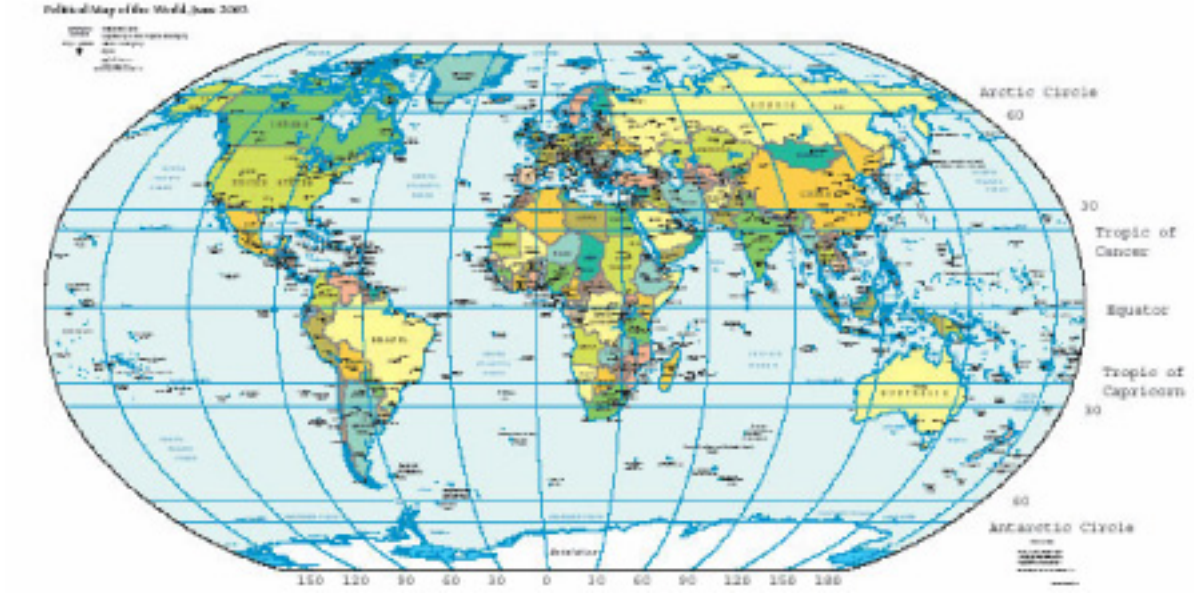
  METRIC: display in metres and kilometres per hour

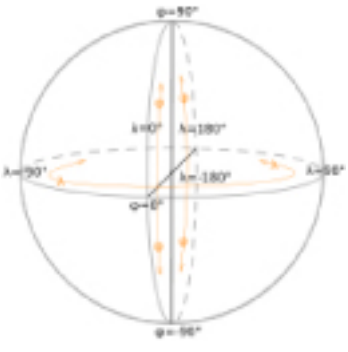
  NAUTICAL: display in nautical miles and knots (naval)

- SPEED UNITS: you have a choice here between displaying pace (speed per kilometre) and speed.

- COORDINATION (coordinate units): you have the choice between DEGREE/MINUTE and DEGREE/MINUTE/SECOND coordinates.

Please remember: a point on the Earth is determined using two coordinates: latitude and longitude. Latitude is a value expressed in degrees: it varies between 0° and 90° in the northern hemisphere, and between 0° and 90° in the southern hemisphere. Longitude is a value expressed in degrees: it varies between 0° and 180° to the east and west of the Greenwich meridian. Degrees are subdivided into minutes, and minutes into seconds (1° = 60 minutes, 1 minute = 60 seconds).





Geographical coordinates on a globe. Latitude corresponds to the measurement of the angle labelled *phi* (φ); the measurement of the angle labelled *lambda* (λ) with relation to the reference meridian is longitude.

iIt is not possible to set your Keymaze so that it displays by default your position in UTM coordinates. You can however get your position in UTM coordinates from the location screen by pressing the pand q buttons.

2.4.4.1.5. AUTO HOLD (Stops the stopwatch automatically)

This setting allows you to stop recording your training session according to your speed. Three options are available:

- OFF: the training stopwatch will not stop automatically.
- WHEN STOPPED: the training stopwatch stops when you stop.
- CUSTOM SPEED: the training stopwatch stops when your speed falls below a specified speed. Enter the speed which suits you.

iIt is important to bear in mind that, even when stopped, the Keymaze will not display a zero speed (this is what we call residual speed). As a result, you should not set the value of CUSTOM SPEED too low.

2.4.4.1.6. ALERTS (Setting your different training alarms)

Use this option to set different alarms for your training session. Three alerts are available:

- TIME/DIST ALERT(Alarm according to time or distance): you can ask your Keymaze to sound when you have been training for a certain length of time. Three values are available:

* OFF: no time alarm.

* ONCE: the alarm sounds after a specified duration, but only once.

* REPEAT: the alarm sounds after a specified duration, on a repeated basis. For example if you set the alarm to 2 minutes, the Keymaze will sound every 2 minutes until you reset it.

If you select ONCE or REPEAT, you can enter the time remaining until the alarm in the ALERT AT field.

You can also set a distance alarm: you can ask your Keymaze to sound when you have trained for a certain distance. Three values are available:

* OFF: no distance alarm.

* ONCE: the alarm sounds after a specified distance, but only once.

* REPEAT: the alarm sounds after a specified distance, on a repeated basis. For example if you set the alarm to 5 kilometres, the Keymaze will sound every 5 kilometres until you reset it.

If you select ONCE or REPEAT, you can enter the distance remaining until the alarm in the ALERT AT field.

- SPEED ALERT: you can ask your Keymaze to sound when you go above a certain speed. To do this, select ON in the field FAST SPEED ALERT and enter the speed you want in the ABOVE field.
- You can also be warned when you fall below a certain speed. To do this, select ON in the field SLOW SPEED ALERT and enter the speed you want in the BELOW field.

iIf you want to keep your speed between two values (for example between 8km/h and 12 km/h), set FAST SPEED ALERT to ON with the value 12, and SLOW SPEED ALERT to ON with the value 8.

Important: this alarm system is quite complex and may conflict with lap time recording.

- HEART RATE ALERT: you can ask your Keymaze to sound when your heart rate exceeds or falls below a preset value (what we call a target zone).

The INTENSITY field (Setting target zone type) can take two values:

- CUSTOM: you set your own target zone value.
- HR ZONE: the Keymaze automatically defines the target zone according to your physiological settings (sex, age, etc.).

The MAX HR ALERT field activates/deactivates (ON/OFF) the alarm if you exceed the upper target zone value. In the ABOVE field enter the upper target zone value.

iIt is not possible to set the value if the INTENSITY field is positioned to HR ZONE.

The MIN HR ALERT field activates/deactivates (ON/OFF) the alarm if you fall below the lower target zone value. In the BELOW field enter the lower target zone value.

iIt is not possible to set the value if the INTENSITY field is positioned to HR ZONE.

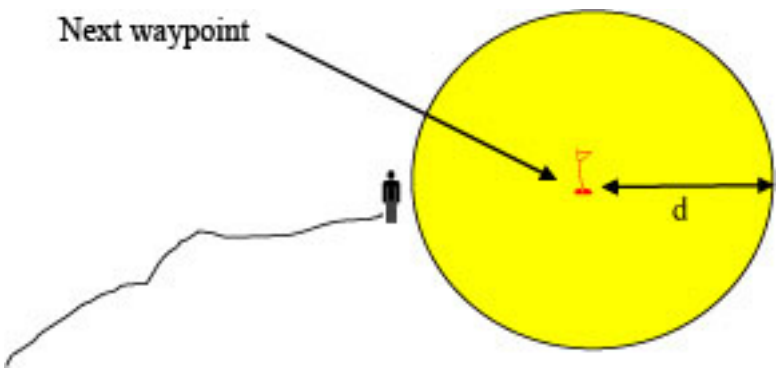
2.4.4.1.7. SET GUIDING (Setting guiding for a route)

Here you can set the value inside which the Keymaze considers that it must switch to the following point (when activating guiding to go to a point, activating a route or activating a track). Select a value in the SWITCH DISTANCE field.

It is vital that you set this parameter in order to achieve optimal guiding using the Keymaze. Firstly analyse whether you are travelling relatively slowly (walking, running), quite quickly (skating) or very quickly (skiing, biking). Then check your environment: are there any obstacles, is the terrain flat, etc. You must always be able to anticipate changes of direction: you should be in control of your journey, and not submit to GPS guiding.

With a little experience you will gain the instinct to choose the correct value. Don't forget that the position given by the GPS is subject to a little inaccuracy (between 10 and 30 metres, or even more depending on satellite signal strength).

For slower speed activities (walking, running, etc.) choose a low distance (50 metres for example)

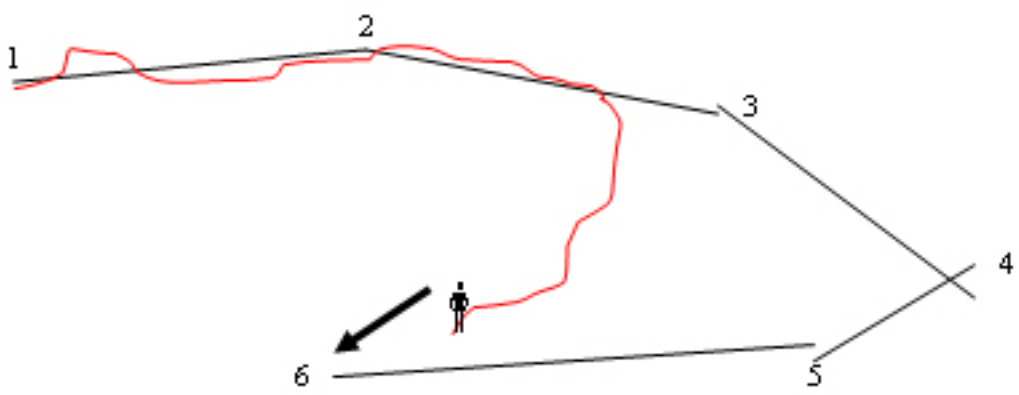


In this example the distance d corresponds to the value of the SWITCH DISTANCE field. As soon you enter the yellow zone, the Keymaze will assume that you have reached this point, and it will then switch to guiding you to the next point.

In the SWITCH CORRECTION (ON/OFF) field you can choose whether you want the Keymaze to guide you to the nearest waypoint to your position. This is very useful if you have got lost, or if part of the route is impractical (if there is a heap of rocks in your path, if a road is closed on your bike route, etc.).

For example:

You plan to visit points 1 to 6. You have been able to reach points 1 and 2, but it was impossible to reach point 3 and when you made your detour you ended up closer to point 6 than points 3, 4 and 5. The Keymaze will guide you to point 6 without going to points 3, 4 and 5.



2.4.4.2. DISPLAY SETTING

Associated submenus:
· ADD/REMOVE MAP MODE
· ADD/REMOVE E-COMPASS
· SET CUSTOM DISPLAY
· SET SCREEN

2.4.4.2.1. ADD/REMOVE MAP MODE

This option allows you to display (ON) or remove (OFF) the map display on the Keymaze screen. It is often best to activate this option to give you an idea of the overall shape of your route.

2.4.4.2.2. ADD/REMOVE E-COMPASS

This option allows you to display (ON) or remove (OFF) the electronic compass display on the Keymaze screen. When you activate this function, you have the option to calibrate the compass (in other words adjust it according to the magnetic field). It is important to perform this adjustment regularly, particularly if you change region or country. To do it, hold your Keymaze in a horizontal position, and turn it around 2 or 3 times until the message CALIBRATION OK appears.

i You have the option to calibrate your compass later by going to SETTING/COMPASS SETTING/CALIBRATION.

2.4.4.2.3. SET CUSTOM DISPLAY (Setting training screens)

In this menu, you can set your four training screens. Each screen can display up to four items of information. Here is your choice of data:

SPEED: instant speed	TIME: training stopwatch
AVG SPEED: average speed	REST DIST: distance remaining to your destination
MAX SPEED: maximum speed	REST TIME: time remaining to your destination
PACE: speed per kilometre	LAP DIST: distance covered during a lap time *
AVG PACE: average pace	LAP TIME: lap time duration *
BEST PACE: best pace	LAP SPEED: average speed during a lap time *
DISTANCE: distance covered	LAP PACE: pace during the lap time *
ALTITUDE: local altitude	LAPS: number of lap times stored *
CUMULATE +: positive altitude changes (sum of all positive altitude changes)	HEARTRATE: heart rate *
CUMULATE -: negative altitude changes (sum of all negative altitude changes)	AVG HR: average heart rate *
Asc SPEED: ascending speed	MAX HR: maximum heart rate *

CALORIES: calories expended	IN HR ZONE: time spent in the target zone *
CAL RATE: average calories expended	OUT HR ZONE: time spent outside the target zone *

* This information is only available if you have a Keymaze 700.

Begin by choosing the number of parameters to display in the first training screen. In the first field, press OK to display the list of parameters. Select the one which you want. Continue in the same way to set the other fields in the screen.

The procedure is identical for setting the other training screens.

iIt is often better to have fewer parameters on the screen, making it easier to read. The number of parameters per screen also depends on your activity. Try to choose the most representative ones in order to improve analysis of your training.

We advise you to have one screen with one parameter, two screens with two parameters and one screen with four parameters.

For example: for running, one screen with distance and heart rate (if you have a Keymaze 700), one screen with speed and one screen with the training stopwatch and pace. In the mountains, one screen with altitude and positive and negative altitude changes, one screen with distance and the training stopwatch, one screen with altitude and heart rate (if you have a Keymaze 700).

With experience you will learn to set the best parameters.

Training screen with four parameters

Training screen with two parameters

2.4.4.2.4. SET SCREEN (Screen display settings)

In this menu you can set the backlighting time. In the BACKLIGHT field, choose a value from a choice of 15s, 30s, 1 minute and 2 minutes. You can also choose permanent backlighting by selecting STAYS ON.

Screen contrast can also be adjusted. Go to the CONTRAST field and press OK. Using ▲ and ▼, increase or decrease the contrast and press OK to confirm.

2.4.4.3. COMPASS SETTING

Associated submenus:

· CALIBRATION
· SET DECLINATION
· FOLLOW BEARING

This option allows you to set the Keymaze's electronic compass.

2.4.4.3.1. CALIBRATION (Calibrating the compass)

This option allows you to start the compass. It is important that you perform this adjustment regularly. To do it, hold your Keymaze in a horizontal position, and turn it around 2 or 3 times until the message CALIBRATION OK appears.

2.4.4.3.2. SET DECLINATION (Adjusting magnetic declination)

The Keymaze's electronic compass indicates magnetic north. Geographic north (true north) is not exactly in the same direction. To get a clear idea when travelling, you need to enter the declination between magnetic north and true north. By default, the value is set to 0.

You can ignore this parameter by selecting OFF. In this case, you assume that true north and magnetic north are the same thing. This can lead to significant errors of direction in some regions (near the poles).

If you select MANUAL you have to enter the declination value.

i1:50,000 Landranger and 1:25,000 Explorer Ordnance Survey maps give the declination value. This declination depends on your locality, and varies slightly over time.

Here are a few cities with their declination values.

n°	Pays	Ville	Variation	n°	Pays	Ville	Variation
1	Afghanistan	Kabul	2-E	33	Netherlands	Amsterdam	1-W
2	Australia	Canberra	12-E	34	New Zealand	Wellington	22-E
3	Austria	Vienna	2-E	35	Norway	Oslo	0
4	Bahrain	Manama	2-E	36	Pakistan	Islamabad	2-E
5	Bangladesh	Dhaka	0	37	Philippines	Manila	1-W
6	Belgium	Brussels	1-W	38	Portugal	Lisbon	5-W
7	Brazil	Brasilia	19-W	39	Russia	Moscow	9-E
8	Canada	Ottawa	14-W	40	Singapore	Singapore	0
9	Chile	Santiago	5-E	41	South Africa	Cape Town	23-W
10	China	Beijing	6-W	42	Spain	Madrid	3-W
11	China	Hong Kong	2-W	43	Sweden	Stockholm	3-E
12	Costa Rica	San Jose	0	44	Switzerland	Bern	0
13	Cuba	Havana	3-W	45	Taiwan	Tai-pei	3-W
14	Czech Republic	Prague	2-E	46	Thailand	Bangkok	0
15	Denmark	Copenhagen	1-E	47	UAE	Abu Dhabi	1-E
16	Egypt	Cairo	3-E	48	United Kingdom	London	3-W
17	Finland	Helsinki	6-E	49	United States	Washington, DC	10-W
18	France	Paris	1-W	50		Juneau	25-E
19	Germany	Berlin	1-E	51		Phoenix	12-E
20	Greece	Athens	3-E	52		Little Rock	2-E
21	Hungary	Budapest	4-E	53		Sacramento	16-E
22	India	New Delhi	1-E	54		Denver	10-E
23	Indonesia	Jakarta	1-E	55		Atlanta	4-W
24	Israel	Jerusalem	3-E	56		Honolulu	10-E
25	Italy	Rome	1-E	57		Boston	16-W
26	Japan	Tokyo	7-W	58		Saint Paul	2-E
27	Jordan	Amman	3-E	59		Jackson	1-E
28	Kenya	Nairobi	1-E	60		Santa Fe	10-E
29	Korea	Seoul	7-W	61		Oklahoma City	6-E
30	Malaysia	Kuala Lumpur	1-E	62		Salem	18-E
31	Mexico	Mexico City	6-E	63		Harrisburg	11-W
32	Nepal	Kathmandu	0	64		Salt Lake City	14-E

If you select AUTO, adjustment is automatic according to your geographic position (recommended).

2.4.4.3.3. FOLLOW BEARING (Follow a direction with the compass)

With this option, you can enter an azimuth (the angle between north and the direction you want to take). The electronic compass will then indicate the direction to take with the direction arrow. Enter a value in degrees and choose YES.

2.4.4.4. HEART RATE SETTING

iThis function is only available on the Keymaze 700.

This menu allows you to adjust all parameters related to the use of the heart rate monitor function.

Associated submenus:
·CARDIO MODE
· **SET TARGET ZONE**

2.4.4.4.1. CARDIO MODE (Activating cardio mode)

In the HEART RATE MONITOR field, choose ON to activate the heart rate monitor or OFF to choose not to use it. If the monitor is activated, you can choose to measure the calories expended according to your heart rate (more accuracy). Choose YES in the CALCULATE CALORY BY HEART RATE field.

iImportant: when you turn on your Keymaze 700, the HEART RATE MONITOR function is activated (ON) by default. However, if your heart rate value is not displayed, check that the function is ON.

2.4.4.4.2. SET TARGET ZONE

Your (theoretical) maximum achievable heart rate is displayed in the MAX HR field. It is calculated automatically using the formula: 200-your age.

HR ZONE is underneath. You can set the lower and upper limits of your target zone. It is given in BPM (beats per minute).

i The TARGET ZONE is defined according to your maximum heart rate and the objective you want to achieve. Your maximum heart rate (MHR) is calculated roughly by using the function MHR = 220-your age (you can get a more precise value for your maximum heart rate by doing an effort test with your sports physician).

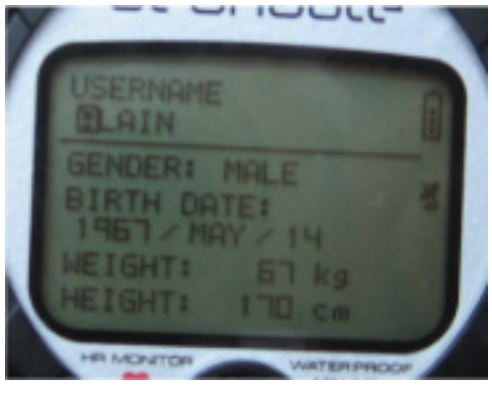
The heart rate zones are usually as follows:

- Moderate activity: ZONE between 50 and 60% of MHR (e.g.: walking, hiking)
- Weight control: ZONE between 60 and 70% of MHR (e.g.: cardio-training, running, skating)
- Aerobic zone: ZONE between 70 and 80% of MHR (e.g.: endurance training, 10,00O metres)
- Speed training: ZONE between 80 and 90% of MHR (e.g.: 400 metres).

For example: a person aged 40 who resumes a sporting activity should set their TARGET ZONE between 90 and 108 beats. MHR is 220-40=180. The TARGET ZONE will be:

- 50% of 180 = 90 bpm
- 60% of 180 = 108 bpm

CAUTION: these data are purely indicative. For informed athletes, these values may differ.



2.4.4.5. USER SETTING (Setting user settings)

This option allows you to set all your personal settings.

Use the USERNAME field to select your username. When you press OK, an alphabet appears. Select the letter which you want. Continue in the same way to select the other letters to make up the user's name. When the name is complete select the Ã character and confirm by pressing OK.

Choose your sex in the GENDER field. In the BIRTH DATE field you can enter your date of birth. Important: you must first set the year, then the month and finally the day of your birth.

Enter your weight in the WEIGHT field. Important: if you chose STATUTE in the SET UNITS menu, your weight will have to be entered in pounds.

Enter your height in the HEIGHT field. Important: if you chose STATUTE in the SET UNITS menu, your height will have to be entered in inches.

iAll these data items can be directly entered using the software (see the menu DEVICE/SYSTEM INFORMATION).

2.4.4.6. SYSTEM SETTING (Setting system settings)

This menu allows you to set all your system parameters: GPS activation, time, internal software update, etc.

Associated submenus:
- GPS SETTING
- SETUP TIME
- FIRMWARE UPGRADE
- FACTORY RESET
- TURN PC-GPS
- GPS INFO
- SET SYSTEM

2.4.4.6.1. GPS SETTING

In the GPS field, choose NORMAL to activate GPS measurement of your location or GPS OFF if you do not want to activate GPS function. Your location will no longer be measured, and training data will be misleading.

i The satellite symbol is no longer displayed. We advise you to set this option to NORMAL, unless you want to save your Keymaze battery at all costs.

The WAAS/EGNOS field allows you to activate/deactivate this function. When you activate it, you get a more accurate reading of your location (up to 5 metres). Choose ON to activate WAAS/EGNIOS or OFF to deactivate it.

iEven though it uses a bit more battery power, you are advised to set WAAS/EGNOS to ON.

2.4.4.6.2. SETUP TIME

i The watch time updates automatically thanks to the reception of satellite signals. The Keymaze must have detected the satellite signals at least once. However, there are a few parameters to set.

In the TIME ZONE field, press the OK button. In the scrolling menu, select the appropriate city (reference time zone).

To activate or deactivate summer time, go to the DAYLIGHT SAVING field and press OK. Select YES or NO.

To activate or deactivate 12/24 hour time display, go to the TIME FORMAT option. Select your preferred option.

2.4.4.6.4. FACTORY RESET (Restore original settings)

To restore your Keymaze's original settings, select this function. The training data stored on the device will not be deleted.

2.4.4.6.5. TURN PC-GPS (Using your Keymaze as a GPS aerial)

It is possible to use your Keymaze as a GPS aerial in order to get information on your location and satellites using the software.

To do this, connect your Keymaze to your computer, activate this function and use the DEVICE/SHOW NEMA option in the software.

2.4.4.6.6. GPS INFO (Display satellite information)

This option gives you a detailed display of the satellite signals received, and their strengths. If the satellite aerial signal is flashing, this means reception is in progress. The message WEAK SIGNAL is displayed, but does not appear if the GPS function is deactivated.

Wait a few moments (or several minutes depending on your environment) for signal reception to be OK.

iTo get good signal reception, point your Keymaze towards the sky. It is better to stop to get quick reception.

2.4.4.6.7. SET SYSTEM (Setting system information)

In this menu you can set the beeps emitted by the Keymaze and standby mode.

- BEEPER(Sound emitted by the Keymaze): if you choose OFF, the Keymaze will not emit any beeps. MESSAGE ONLY means that a beep will be emitted when a message appears on the screen. Finally, if you choose KEY AND MESSAGE, there will be a beep if you press a button OR when a message appears on the screen.

- SLEEP MODE (Automatic device shutdown): this option allows the Keymaze to be turned off to save the battery. If you select STAYS ON, the Keymaze will remain on. You will need to press to turn it off. If you select 5, 10, 15 or 20 minutes, the Keymaze will turn off after the selected period.

iIf you note that your Keymaze turns off automatically while you are using it, check that you have not accidentally activated SLEEP MODE.

2.4.4.7. ABOUT PRODUCT (Information about the product)

This function displays the version of the firmware used by the Keymaze. You can then check on the Keymaze website to see whether a later version is available.

3 / Further information

3.1.What you need to know about the product

Print this paragraph : What you need to know about the product

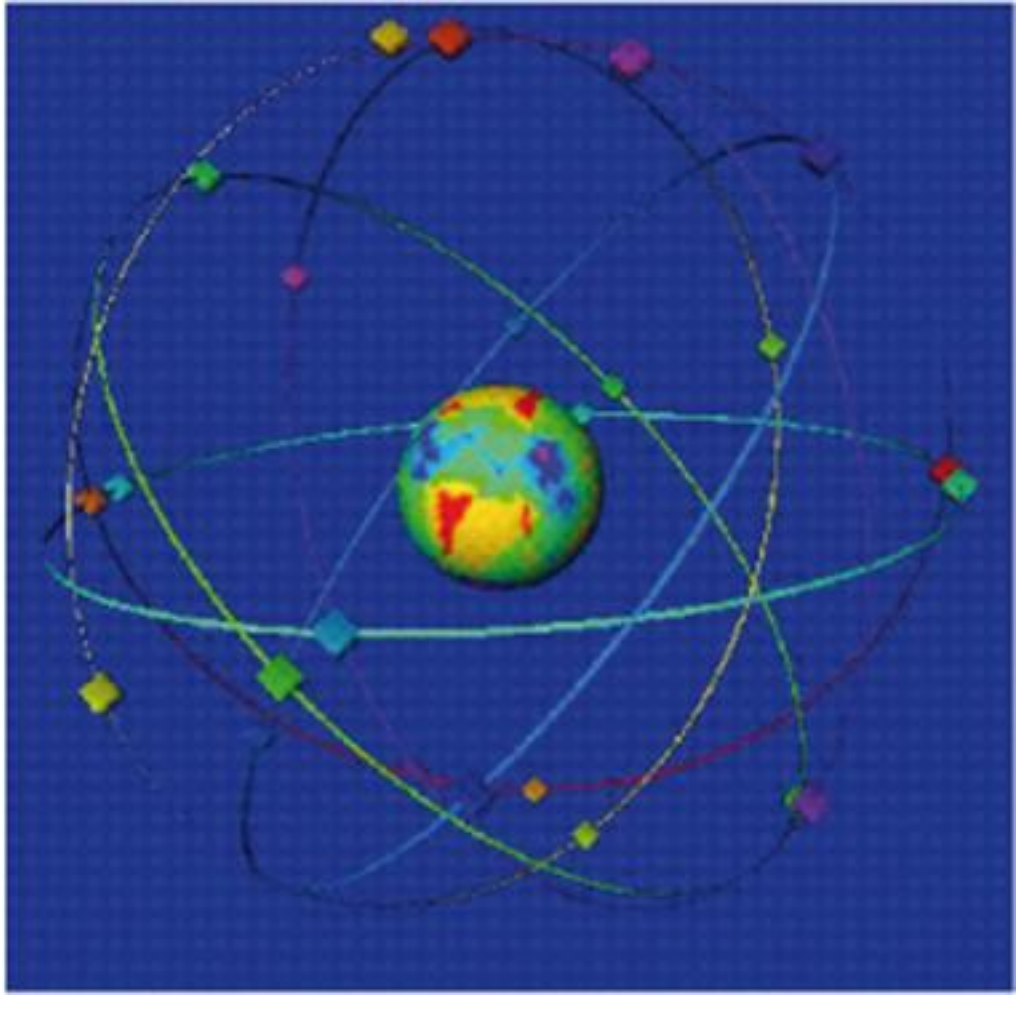
3.1.1. Presentation of the GPS system

• What is a GPS?

First, you need to know that the letters **GPS** stand for *Global Positioning System.* GPS is a satellite navigation system currently using a network of 30 satellites (4 of which are reserves) placed in orbit by the US Department of Defence. The satellites move on 6 different orbital paths with an inclination of around 55° to the equator. They gravitate along an almost circular polar orbit at an altitude of 20,300km (±200km) lasting 11 hours 58 minutes at a speed of 13,000km/h.

GPS was initially designed for military purposes. It was then made accessible for civil use in aviation, shipping and for various outdoor leisure activities. People now use GPS for hunting, fishing, hiking and to navigate without mishaps.

Technically, it is a receiver, like a radio receiver (not to be confused with a beacon, which emits a signal), which indicates your current position. A GPS does not broadcast any data: it is merely a receiver.



• How does it indicate your location?

It receives data from the satellite network. Each satellite knows its location and emits data continually. The satellites emit signals containing data on the time, orbits and almanac data (position of all satellites). GPS receivers (on the ground, at sea and in the air) receive the satellite signals and calculate their position according to this data. A GPS receiver requires at least three satellites to be able to calculate a 2D location (X, Y) on the surface of the earth. A fourth satellite (sometimes more, depending on signal quality) will provide a 3D location (X, Y, Z) which determines height or altitude. We should note that the initialisation sequence is essential for a GPS to be able to calculate its position. When it first initialises, you need to wait around 5 minutes. The GPS informs you about the current initialisation status on the satellite page; it is usually represented by concentric circles.

• What is a location indicated by a GPS?

A position includes:

- a latitude value: North-South
- a longitude value: East-West

Trafalgar Square has the following coordinates: 51°30'29" latitude North - 0°7'41" longitude West (in the ED50 system).

• GPS accuracy

Two factors reduce the accuracy of the GPS: the intentional reduction of the signal and the signal acquisition time.

A. Intentional reduction of the signal

For more than a decade, by presidential decree, the American military intentionally reduced the GPS signal for civil applications by adding a selective availability code to the signal carrier. This limited accuracy to around 90 metres. However on 1 May 2000, President Bill Clinton cancelled this reduction and offered all users a theoretical accuracy of 25 metres from any point on the globe.

Currently, given a temporal error of 10^{-12} seconds, the GPS system guarantees a horizontal positioning accuracy of at least 36 metres 95% of the time. In reality, the system performs better. To mitigate against the inherent technological defects in the 1970s and 80s, the GPS system has for several years been using a system of local and global correction called the "Satellite Based Augmentation System" or SBAS (WAAS in the USA, **EGNOS** in Europe and MSAS in Asia). Taking the average of these "augmentations" (a number of higher tracking stations, differential GPS, signal enhancement, etc.), the current accuracy of military

positioning is up to 1mm 95% of the time and **3 metres for civilian use**. But not all GPS devices feature this option.

Although the precision of GPS satellites is very high, the accuracy of GPS receivers varies according to when they are updated (every time the almanacs and ephemerides are initialised) and from model to model.

B. Acquisition time

The time taken to calculate a location with a GPS depends on the acquisition time. This does not depend on the navigation or operating software because calculating a location (a "fix" in the jargon) depends directly on the signals received by the GPS receiver.

Signal acquisition time depends on several factors:

- - Satellite geometry in relation to the receiver. The factor represents the GDOP (Geometric Dilution Of Precision). Not only must the receiver detect signals from at least four satellites to get a "fix", but they must also be distributed correctly in the sky or measurement accuracy will be reduced. If the satellites are too closely spread, the area where their "spheres" (inside which the satellites are in signal range) intersect will give a less accurate location than if the satellites were further apart.

- The frequency stability of the satellite, which varies according to the strength of the earth's gravitational field: 35 ns (10.5 metres).

- The accuracy of the almanacs and ephemerides downloaded by the receiver: 33 ns (10 metres).

- The time it takes for the signal to cross the ionosphere, which varies according to its density: 33-65 ns (9.8-16.6 metres).

- The crossing of the troposphere: 13 ns (3.9 metres).

- The stability of the receiver (the receiver clock, the resolution of the receiver, noise level, calculation precision): 9.7 ns (2.9 metres)

- Multiple paths: 8 ns (2.4 metres).

- Dilution or location uncertainty. The acquisition signal or "fix" is received every second by the GPS receiver. But, generally, during this time the receiver has moved and covered a distance of up to 33 metres at 120 km/h. Some navigation software corrects this dislocation.

- Mapping accuracy. The GPS is generally used in combination with road or topographical maps specially designed for this purpose. If the mapping system is not accurate enough, the navigation cursor may not be on the route followed. This phenomenon occurs when the signal is temporarily obscured or when the map is not accurate enough.

All factors combined, the dilution circle may vary between 10 and 30 metres, but may exceed 100 metres in the mountains where altitude must be taken into account.

Sources: www.la-rose-des-vents.fr, www.ign.fr, www.astrosurf.com

3.1.2. Some information on coordinates

The latitude/longitude system

Latitude is an angular measurement extending from 0° at the equator to 90° at the poles. Longitude is therefore an angular 360° measurement in relation to a reference meridian, extending from 180° west to 180° east. The reference meridian is the Greenwich meridian.

Geographical coordinates are given in sexagesimal degrees: Degrees (°) Minutes (′) Seconds (″). The standard sexagesimal unit is the **degree** (360 degrees), then the **minute** (60 minutes = 1 degree) then the **second** (60 seconds = 1 minute). The second can also be divided into 100 parts.

- **DM** Degree: Minute (49:30.0-123:30.0)
- **DMS** Degree: Minute: Second (49:30:00-123:30:00)
- **DD** Decimal degree (49.5000-123.5000), usually with 4 decimal points.

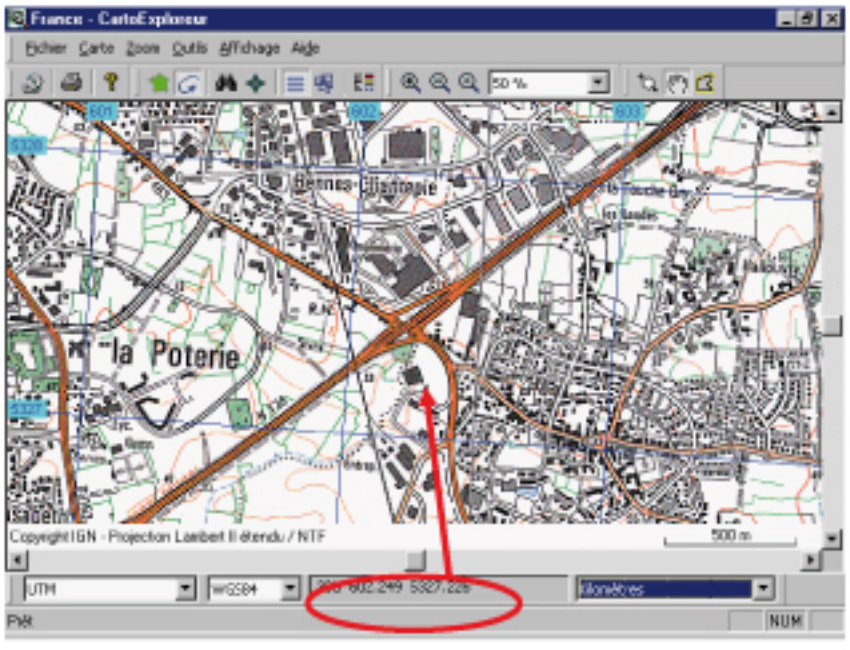
Source: www.en.wikipedia.org

The UTM system

The Earth is divided by longitude into 60 vertical zones of equal North to South width numbered from 1 to 60, each of which is divided into 20 horizontal bands from the 80th parallel south to the 84thparallel north and is designated with a letter. The UK is in zones 29 U, 30 U and 31 U. This system gives the coordinates of a point in **metres**, which allows it to be located quickly and accurately on a "GPS compatible" map, in other words one where the UTM grid has been depicted (Ordnance Survey maps are all compatible: set the GPS to OSGB36).

Source: www.educnet.education.fr

For example:



The building at the end of the arrow is at the following UTM coordinate: 602.249 and 5327.226 in zone 30 U: it is 249 metres from line 602 and 226 metres from line 5327.

Google Earth can display the location of a point in degrees-minutes-seconds, in degrees or in UTM.

3.1.3. Important information about the Keymaze

a) Design choice

As described above, GPS accuracy can be poor in some situations. **The accuracy of the Keymaze will be between 10 and 30 metres.** However, it can be better.

You should also know that, even though it is stopped, the Keymaze will not display zero speed: this is normal, because at every moment the user's location (measured by the device) is slightly different.

To measure speed, we have decided to allocate high accuracy to average speed, even if this means having a slightly delayed display.

As regards altitude, only an altimeter with a pressure sensor can provide the same accuracy. As the Earth is not a perfect sphere, geographers have determined an average level for 0 metres altitude: the geoid (a representation of the earth's surface drawn to approximate as closely as possible the "real surface"). Altitude refers to the distance of a point from the geoid.

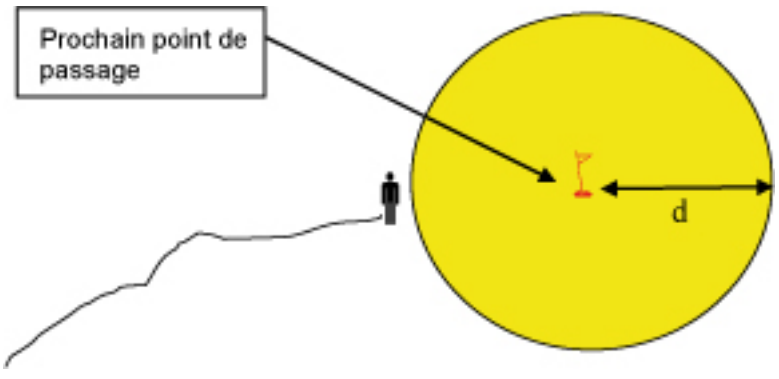
b) Recommendations for effective use

Do not overestimate your physical capacities: if you have a Keymaze 700, use the cardiac function in order to work at the right energy level.

In terms of calories expended, you should set your Keymaze according to your activity type, and to set your personal settings carefully. The more accurate these settings are, the closer the result will be to reality.

When you want to record a training session, set the trackpoint recording setting to a correct value. For long training sessions (lasting over an hour, for example), it is not necessary to record points every second. Recording a point every 30 seconds may be enough. You will also save memory capacity.

In navigation mode, you should set the parameter allowing you to go from one point to another (SWITCH DISTANCE). The value of this parameter must be adapted according to the speed with which you are travelling: the faster you go (on a bike for example), the higher this parameter will be. We advise you to enter 50 metres in walking mode.



In this example the distance d corresponds to the value of the SWITCH DISTANCE field. If we take d to equal 25 metres, this identifies a disc with a surface of 1962.5 m² (π*25²) centred on the point to be reached. As soon you enter the yellow zone, the Keymaze will assume that you have reached this point, and it will then switch to guiding you to the next point. You are guided from one point to another by GPS (if you are moving) or in compass mode (if you've stopped). In this case the compass gives you a direction taking into account the last known GPS position.

Never forget that a GPS is a navigation instrument, but it cannot do everything. It helps to guide you, but you must also take into account your environment in your activities.

At the beginning of a route, when you are stopped, the Keymaze direction arrow points in a random direction. You need to start moving for the direction to follow to be correct.

Now enjoy your journey!

3.2.general paragraphs

3.2.1. Limited warranty

DECATHLON guarantees the initial purchaser that this product is free from defects of materials or manufacture for a period of two years from the date of purchase. Please keep your receipt as proof of purchase.

- This warranty does not cover damage resulting from misuse, from a failure to comply with the precautions for use, from accidents, from improper maintenance or from commercial use.

- This warranty does not cover damage resulting from repairs carried out by persons not authorised by DECATHLON.

- The guarantees contained herein explicitly replace all other guarantees including the implicit guarantee of merchantability and/or suitability for use. DECATHLON cannot under any circumstances be held liable for any damage, whether direct or indirect, general or specific, caused by or related to these instructions for use or the products they describe.

- During the warranty period, the item will either be repaired free of charge by an authorised repair service or replaced free of charge (depending on the retailer).

- The warranty does not cover batteries or cracked or broken casings where signs of a blow are evident.

3.2.2. Precautions for use

Normal conditions of use

This GPS is designed to be worn on the wrist for leisure and light sporting activities. It can be used as a stopwatch during outdoor sporting activities, to find your geographical position and to measure your speed, distance and heart rate (with the Keymaze 700). Using the software supplied, provided that it is compatible with your hardware, you can export data to a computer, import routes to your Keymaze and display your journey using Google Earth™ (software available on the internet).

Usage restrictions and precautions for use

- Waterproofing: this product is splash resistant and even resistant to accidental shallow submersion (1 metre) for 30 minutes. Do not use your Keymaze if you play watersports which carry a risk of violent falls into the water (canyoning and windsailing for example).

- Handle the device with care - do not drop it or subject it to strong impacts.

- Do not dismantle the product. This would void the warranty and could cause damage and loss of waterproofing.

- Please read the owner's manual carefully before use. Keep these instructions for the entire life of the GPS.

- Do not subject the GPS to extreme temperatures.

- Use only a soft, damp cloth to clean. Do not use detergents, as they could damage the equipment.

- After every use of the Keymaze, if it has come into contact with dirty water (sweat, seawater, etc.), you should rinse it in clean water (including the connector) and dry it. You should then leave it to dry before connecting it to your computer. If you do not clean it, salt or other particles may damage the connector and so prevent data from loading or uploading to your computer.

The user is explicitly warned about the limits of the GPS: the quality of signal reception is variable. The user should particularly expect reduced accuracy in the following conditions:

- In urban areas, especially near high buildings
- In undergrowth
- In steep valleys
- In poor weather

Important: the device and software allow you to download routes in GPX or KML format. The user is explicitly warned that GPX format is not a recognised standard. We can only therefore guarantee compatibility with Google Earth™ and we cannot certify compatibility with the great number of linked sites (route marking or social networking sites). We therefore advise you first to open the downloaded route in Google Earth and then to import it to the Keymaze software as described in Chapter 6.

Typical system accuracy

Location:

The optimal accuracy of 10 metres may deteriorate to 30 metres if several disturbing factors combine.

Distance:

Distance accuracy, which typically ranges from 3 to 5% of the real distance, may deteriorate to 6 or 8% of the total distance.

Speed:

Speed accuracy depends on the speed itself: the faster the journey, the better the relative accuracy. As a general rule, accuracy for instant speed will be +/- 2 to 3km/h.

Altitude:

GPS devices have a lower absolute altitude accuracy than barometric systems. There is no absolute referential for sea level in space. Absolute accuracy will be around 50 metres; relative accuracy (for altitude variations at constant XY) will be around 10 metres, as with location.

The GPS does not function underwater, inside buildings or in tunnels.

Obligations and standards

The "crossed-out bin" symbol indicates that this product and the batteries it contains cannot be disposed of with household waste. They are subject to specific sorting. Take the batteries and your unusable electronic product to an authorised collection area for recycling. Recycling your electronic waste will protect the environment and your health

FCC: This product conforms to section 15 of the FCC rules. It functions according to the following two conditions:

1 - This device will not produce harmful interference.

2 - This device must accept any interference received, including interference that may cause undesired operations.

This equipment has been tested and certified to comply with the restrictions on class B digital devices, under the provisions of section 15 of the FCC rules. These restrictions are designed to ensure reasonable protection against harmful interference in a residential environment. This equipment generates, uses and emits radio frequency energy and, if it is not installed in accordance with the instructions, may cause interference which is harmful to radio communication. However, there is no guarantee that it will not produce interference in a particular environment. If this equipment causes interference which is harmful to radio or television reception, bear in mind that interference can be controlled by turning the device off and then on again. The user is also advised to guard against this interference by taking one or more of the following actions:

- Reorienting or moving the aerial

- Increasing the distance between the device and the receiver.

- Connecting the device to a socket on a different circuit to that to which the receiver is connected.

- Seeking the advice of the retailer or a technician specialising in radio/television.

CAUTION: ANY CHANGE OR MODIFICATION NOT EXPLICITY APPROVED BY DECATHLON MAY VOID THE AUTHORISATION GRANTED TO THE USER TO USE THE EQUIPMENT.

CE

3.2.3. Technical specifications

Size of the device: 76.5mm X 61.5mm X 17.5mm

Screen size: 24.9mm x 39.88mm

Screen: black and white 80 pixels x 120 pixels

Weight: 72.87 grams

GPS chipset: SiRF star III

20-channel satellite signal reception

Aerial built into the casing

Acquisition of satellite data: every 0.1s

Time to obtain satellite reception:

Warm: 1 second on average*

Cold: 42 seconds on average*

Signal reception in WAAS/EGNOS

Location accuracy: 10 metres. 5 metres in WAAS/EGNOS mode

*reception times given by the GPS chipset supplier, assuming optimal reception conditions (unobstructed environment, clear skies)

750 mAh lithium-ion rechargeable battery. Option to recharge the battery using an external charger delivering 5V.

Standby time: 9 to 25 hours according to the settings entered

Speed: display of 0.1 m/s in 0.1 m/s

Maximum measurable speed: 515 m/s (1854 km/h, or 1000 knots)

Maximum measurable altitude: 18,000 metres (or 60,000 feet)

Maximum acceleration: 4g

Usage temperatures: -10° to +60°C

Hygrometry: 5% to 95%

Waterproofing: IPX7 standard

3.2.4. Main functions

Time functions

Date and time

Exercise stopwatch

Exercise function

100 recordable training sessions

62 lap times recordable per training session (with the Keymaze 700)

Calories expended

Time, distance, speed and heart rate alarms (with the Keymaze 700)

Altitude measurement

- real time altitude
- average altitude (with the software)

- climbing speed (with the software)
- positive and negative altitude changes

Speed measurement

- real speed
- average speed
- maximum speed

Cardiac measurement (with the Keymaze 700)

- instant heart rate
- target zone
- Minimum, average and maximum heart rate (with the software)

Navigation functions:

100 recordable waypoints

100 routes featuring 100 waypoints

60,000 trackpoints

Go Back (return to the point of departure in a recorded route)

Electronic compass with declination adjustment