Flytec 6005/6010

Operating Instructions

2.0en 14.11.2007

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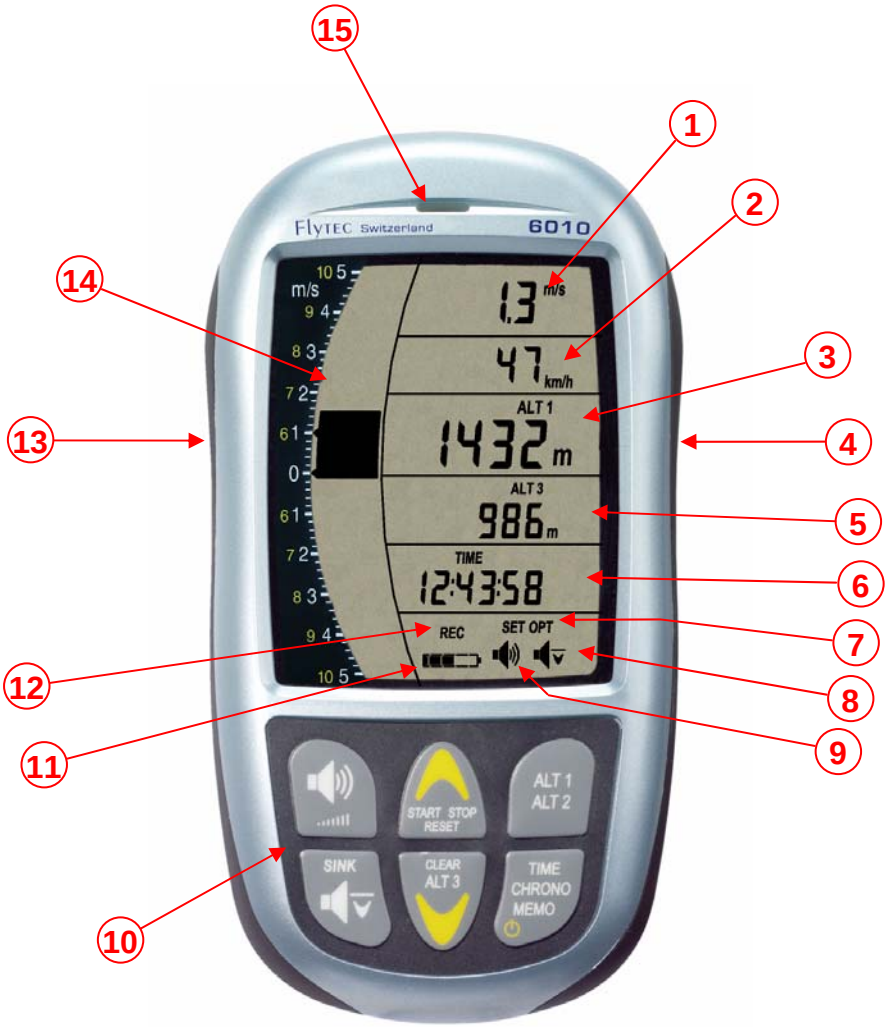
Instrument layout



1 Integrated Digital Vario Display
2 Speed/Temperature Display
3 Barometric Altitude 1 or Altitude 2
4 PC Interface Port (6010 only)
5 Relative Altitude 3
6 Clock/Stopwatch/Flight Timer
7 Set/Opt Mode Indicator
8 Sink Alarm Indicator
9 Vario Volume Indicator
10 Keypad
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12 Record Indicator (Flight Acceptance)
13 Speed Sensor Jack
14 Analog Vario Display
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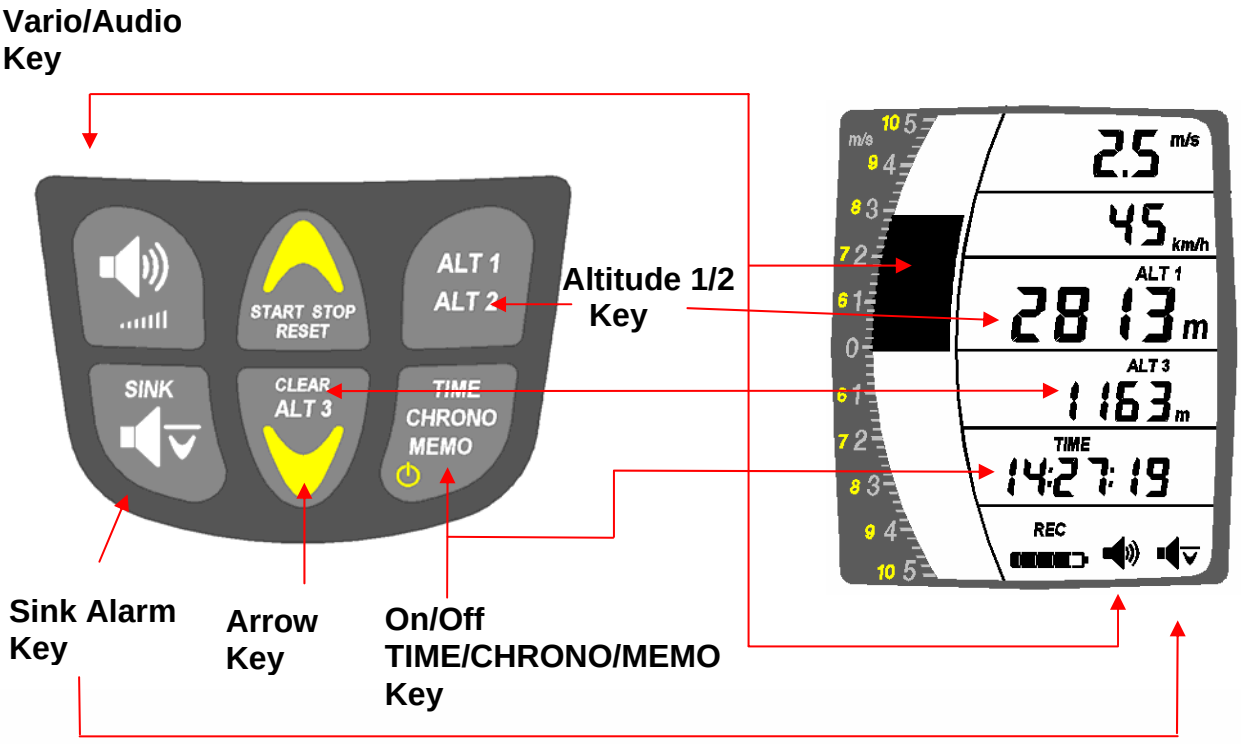
Operating Philosophy

Flytec's philosophy is to produce user-friendly instruments. When you turn on the instrument the instrument will go through a self test and proceed to the **Run-Mode**. A quick press of each key in the Run-Mode lets you access the main functions of the instrument. Hold a key down for about **three seconds** to call up **Set-Mode** for that function. From there, a further **three-second** press will call up **Option-Mode** for that key.

In Set-Mode and Option-Mode, the keys labeled *START/STOP/RESET* and *CLEAR-ALT* become Arrow Keys. With these you can change the display fields, which flash to indicate they are changeable. After making changes in Set-Mode, use a short press to return to Run-Mode, or wait three seconds.

Keyboard layout



Run-Mode

During normal use the instrument is in **Run-Mode**. In this mode the instrument shows analog and digital sink/climb rate, airspeed (if the optional sensor is plugged in), temperature, altitude, altitude difference, time, battery condition and the activated acoustic signals.

In Run-Mode you can call up the following direct functions by briefly pressing the keys:

- volume of the vario acoustic
- sink alarm on/off
- alternate between two barometric altitude displays (*ALT1/ALT2*)
- reset altitude difference (*ALT3*)
- stop watch start/stop/reset
- change between *TIME*, *CHRONO* and *MEMO* displays

Set-Mode

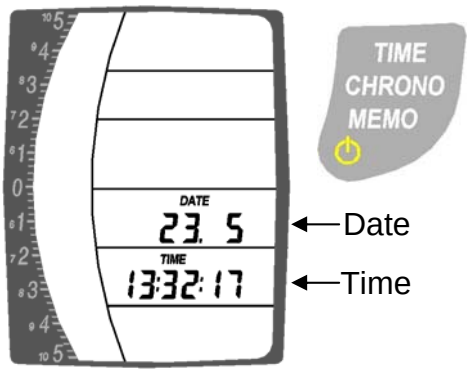
To enter Set-Mode for a given key, press and hold the key for about three seconds. The *SET* indicator will appear in the lower portion of the display. The relevant display field will flash and can be altered with the Arrow Keys. After making your changes, either wait three seconds or use a short press to return to Run-Mode. A three-second press when in Set-Mode will take you to Option-Mode. The functions that can be set within the SET mode are discussed in the sections of this manual that pertain to the relevant key, or they can be found in the Function Overview at the end of this manual.

Option-Mode

When in Set-Mode, press and hold the same key again for three seconds to bring the instrument into Option-Mode. The *OPT* indicator will appear in the lower portion of the display. Here you can change the settings of various values (see more details below). Again, the relevant field will flash and can be altered with the arrow keys. Use a short press on the same key to accept your changes and go on to the next option; when you reach the last option a short press will cycle the instrument back to the first option. When you are finished setting the options, wait eight seconds and the instrument will return automatically to Run-Mode.

Switching the Instrument *ON / OFF*

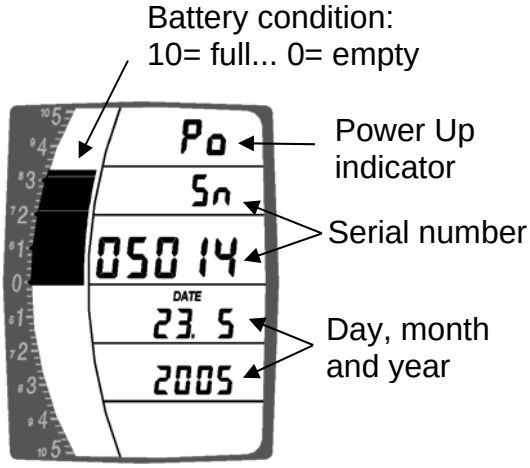
Switching the Instrument On



The date and time are displayed when the instrument is off.

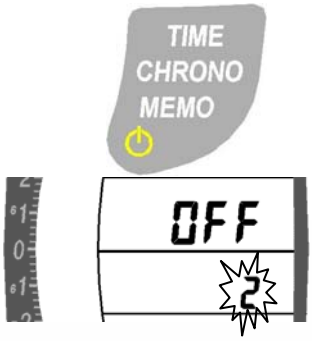
To turn on the instrument, press and hold the On / Off "*TIME/CHRONO/MEMO*" Key until you hear a beep, and then release it. After a short display test you will see the Startup Screen.

Startup Screen



The Startup Screen shows the serial number, the battery condition and the date. The analog scale on the left shows the battery charge.

Switching the Instrument OFF



To switch the instrument *OFF* press and hold the *TIME/CHRONO/MEMO* Key for about **seven seconds**.

While you are holding the *TIME/CHRONO/MEMO* key,the Set Menu for time will appear if an actual flight has not been recognized by the instrument (refer to section on Flight acceptance page 19. **Continue to hold the key down** while the instrument counts down from 3 to 1. You will hear a beep and see *OFF* appear on the display when the process is complete.

The 6005/10 will **automatically** power down if no flight activities are detected within 60 minutes of power on. This time period can be altered on the 6010 with FlyChart.

The Altimeter

How does an altimeter function?

A barometric altimeter calculates altitude (elevation) from the actual air pressure of the atmosphere at a given location. Air pressure decreases with increasing elevation, however, since air is compressible, the pressure change is exponential not linear. Altimeters designed for aviation use the CINA (Commision International de Navigation Aérienne) formula to derive altitude from air pressure. In this calculation the **CINA–atmosphere** is used where standard atmospheric pressure at sea level is **1013.25 hPa** (Hecto-pascal) at a temperature of **15°C**. Temperature also decreases with increasing altitude and must also be considered in the altitude calculation. A constant temperature decrease of **0.65°C per 100m** ascent is also assumed in the CINA equation. Because of these assumptions with respect to pressure and temperature a barometric aviation altimeter only indicates the actual altitude when the weather conditions correspond to the standard atmosphere and lapse rate. In reality the atmosphere rarely corresponds to the CINA standards.

The weight of the atmosphere and its corresponding pressure, are appreciably affected by air temperature. If the temperature of the atmosphere deviates from standard atmosphere, the altitude computed with the international formula is not correct. Altitudes will be shown lower than actual in the summer and higher than actual in the winter. A deviation of 1°C per 1000m will result in approximately a 4m error in altitude. For example, if a pilot sets his altimeter on a warm summer day where the air temperature is 16ºC warmer than standard atmosphere and then changes altitude 2000m, his altimeter will show 2 x 4m (per 1000m) x 16ºC = 128m lower than actual!

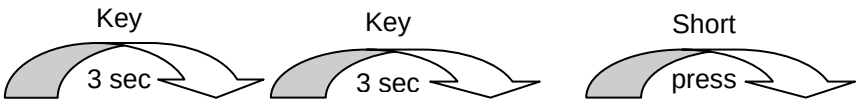
To further complicate matters, the air pressure over a given location changes will change as weather systems move across the area. In order to compensate for pressure changes induced by changes in the weather an altimeter must be adjusted prior to each flight. This can be done by setting the altimeter to a know elevation (e.g., Launch). Another method of setting an altimeter is to enter the current QNH pressure value. The QNH is the barometric pressure at a measuring station reduced to sea-level. If an altimeter was set to the QNH at a measuring station (regardless of elevation) and then brought to sea-level it would read zero. The QNH value is constantly updated and can be obtained from flight service stations and can be requested from airfields over an aeronautical radio. Keep in mind that the atmospheric pressure can change up to five millibars over the course of a day, such as with the passage of a cold front, corresponding to a change in elevation of more than 40 meters.

Altimeter Displays

The 6005/6010 is equipped with **three independent** Altimeters:

ALT1 Absolute altimeter
ALT2 Absolute or Relative altimeter
ALT3 Differential altimeter

Altimeter Overview



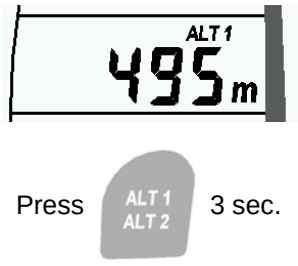
Key	Direct Functions	Set-Mode ★	Option-Mode ★ 1	2	3
ALT 1 ALT 2	**ALT 1**	*ALT1* Altitude 1 starting point set with Arrow Keys or choose preset 1 to 5 with MEMO Key	*Unit* Altitude 1 *m* or *ft*	*Unit* QNH pressure *hPa* or *inHg*	*Corr* pressure sensor correction +/-47.9 hPa
	ALT 2	*ALT2* Altitude 2 starting point set with Arrow Keys	*Unit* Altitude 2 *m* or *ft*	*REL/AbS* relative or absolute mode for Altitude 2	
CLEAR ALT 3	**Clear ALT3**	no Set Mode	no Option Mode		

★ Only if no flight acceptance is

Altimeter 1 (ALT1)

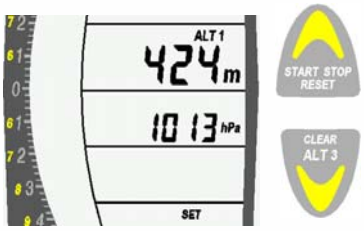
Altimeter 1 indicates the absolute altitude above sea level.

Press the Altitude Key to alternate between displaying *ALT1* (current barometric altitude) and *ALT2* (reference barometric altitude).

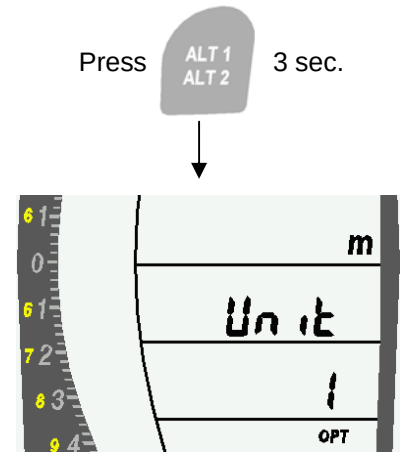


Set-Mode ALT1

Press the ALT1/ALT2 Key for three seconds while ALT1 is shown in the display, to bring the instrument into ALT1 Set-Mode. The altitude and the QNH display fields will flash, modeindicating that they can be set; use the arrow keys to adjust your current altitude/QNH. Note that the QNH changes as the altitude changes, consequently if your current altitude is unknown it can be set by setting the QNH available from weather reporting stations or flight service. **Important:** ALT1 set is **only** available if The 6005/10 has not recognized the beginning of a flight (flight acceptance).



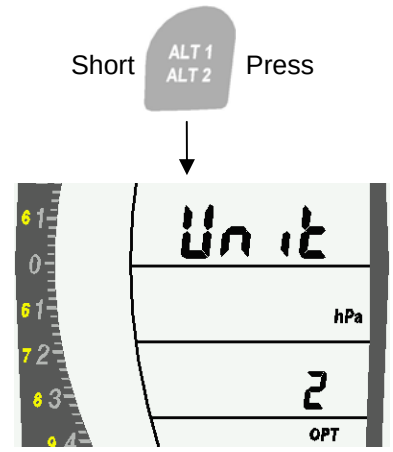
ALT1 can only be adjusted to current absolute height, and cannot be adjusted more or less than 3,000 feet of the current displayed height.



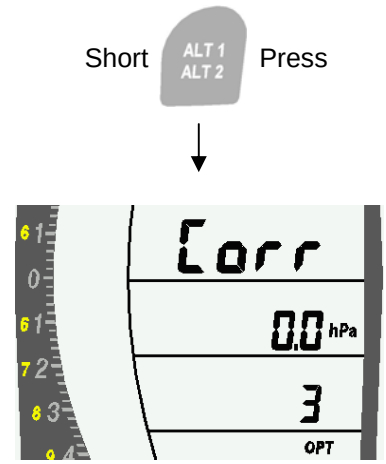
Option-Mode ALT1

From *ALT1* Set-Mode, press the Altitude Key for three seconds to bring the instrument into Option-Mode. After making each change, use a quick press on this key to confirm and go to the next option, or wait three seconds to keep your changes and return to Run-Mode.

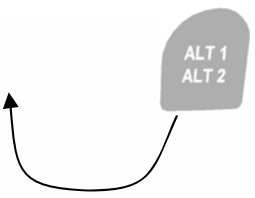
Option 1: ***Unit*** [set altitude units]
Use the Arrow Keys to set the units of altitude to **feet** or **meters**.



Option 2: ***Unit*** **QNH** [set pressure units]
Use the Arrow Keys to set the pressure units for *ALT1* to ***hPa*** or ***inHg.***



Option 3: ***Corr*** [correct air pressure]
Use the Arrow Keys to correct the pressure for *ALT1*. This may become necessary after several years of use (see the section on Care & Maintenance below). The maximum correction possible is +/- 47.9 hPa.

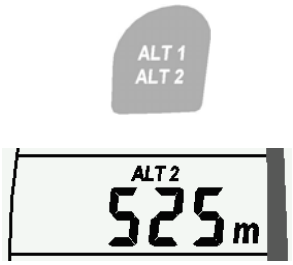


A short press of the Altitude Key cycles you back to Option 1.

Altimeter 2 (ALT2) Absolute / Relative

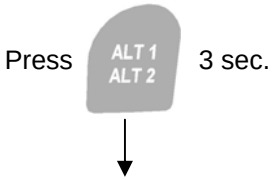
Altimeter 2 can be used as an absolute or as a relative altimeter. When used as an **absolute altimeter,** ALT2 is coupled with ALT1 and it functions in precisely the same way as altimeter ALT1. Altimeter 2 can then be set to display the altitude in meters and altimeter 1 in feet, allowing you to view your current MSL altitude in feet and in meters.

When used as a **relative altimeter**, ALT2 displays your current altitude with respect to a reference point (e.g. launch, landing field, goal, etc.). This reference point can be set in the ALT2 set mode (provided that ALT2 has previously been set as a relative altimeter).



Use the **ALT1/ALT2** Key to change from ALT1 to ALT2 display.

Set-Mode ALT2 -Relative

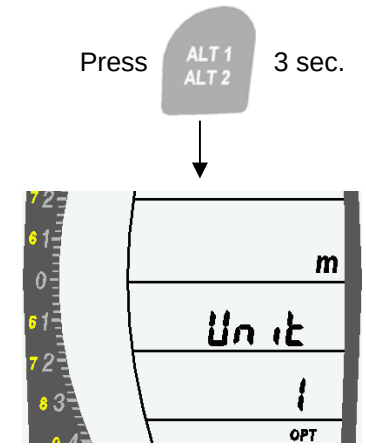


While in the *ALT2* display, press the Altitude Key for three seconds to bring the instrument into *ALT2* Set-Mode (provided that ALT2 has been previously set the be relative).

In *ALT2* Set-Mode you can set a reference altitude (for example, the relative altitude to a goal or waypoint). In order to do this *ALT2* must be set to relative altitude (see Option 2 below

Set-Mode ALT2 -Absolute

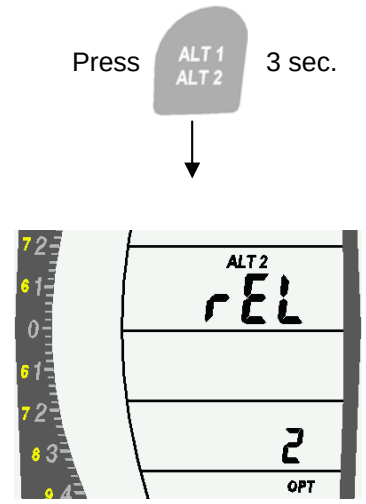
If Altimeter 2 is set to be an **absolute altimeter** it is adjusted in the same manner as ALT1. However, it is coupled to ALT1: any change to ALT2 will be reflected by a corresponding change to ALT1 (and vice versa).



Option-Mode ALT2

From *ALT2* Set-Mode, again press the Altitude Key for three seconds to bring the instrument into *ALT2* Option-Mode.

Option 1: *Unit* [Set altitude units]
Use the Arrow Keys to set the units of altitude to feet or meters.

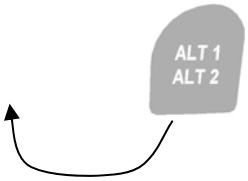


Option 2: *Rel/Abs*
For the *ALT2* value only, you can choose to use relative or absolute values.

TIP: To view your current altitude in both meters and feet, change this option to *ABS* and set the units for *ALT2* to *m*. In Run-Mode you can now toggle between *ALT1* and *ALT2*.

IMPORTANT: If you choose ***ABS*** for *ALT2* in Option-Mode, ***ALT1* and *ALT2* will be linked together.** This means that when *ALT1* is set, *ALT2* will also be set. Option-Mode will remain separated.

A short press of the Altitude Key cycles you back to Option 1.



Altimeter 3 (ALT3) differential altimeter

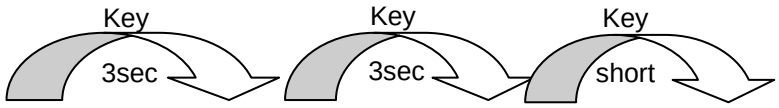
Altimeter 3 is a differential altimeter, in that it indicates the altitude difference with respect to the last zero set. This function is often used to measure the altitude difference in relation to the take-off area, or while flying in weak thermals, to easily recognize altitude gain/loss.

A short press on the **Clear ALT3** Key will reset the differential altimeter ALT3 to zero.

Variometer

For the soaring pilot the variometer is the most important element of the instrument, since it tells the pilot if he is climbing or descending. The 6005/10 will tell you, both acoustically and visually, if you are climbing, how fast you are climbing, as well as the rate of change in your ascent. With the Option- and Set- modes you can customize the vario functions to you personal preferences.

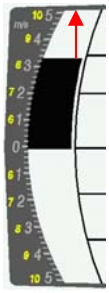
Variometer Overview



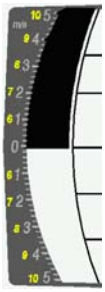
Audio Key	Direct Functions	Set-Mode	Option-Mode 1	2	3	4	5
	**Vario Volume** 6 Levels	**A-Int** basic damping 1,2,3,4	**Unit** climb rate m/s or ft/min x100	**d-Int** averager period 1 - 30 sec	**Audio** Vario Audio threshold 4 ft/min to 80 ft/min	**Audio Pitch** 3 to 11 m/s 600-2200 ft/min	**ASI** On/Off

Analog Vario Display

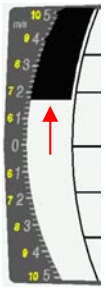
Each graduation on the analog bar scale equals forty feet per minute. Up to 1,000 ft/min, the bar fills up from the center. When your climb exceeds 1,000 ft/min the climb is displayed in reverse – that is, the display at 1,000 ft/min is full and it begins to clear from the middle, as in the illustration below. The basic damping (turbulence filter) of the variometer can be is set in the Vario Set-Mode.



Climb at 600 ft/min



Climb at 1000 ft/min



Climb at 1200 ft/min

Digital Vario Display

The digital vario displays your average climb or sink rate. The value is updated each second and shows the average climb/sink rate for the last x seconds. The period of time *x*, over which the climb rate is averaged, can be set from 1 to 30 seconds in the Vario Option-Mode (option 2). A value of 10-20 seconds is recommended.

Acoustic Vario

The 6005/6010 will beep when you are climbing at a rate greater than a predetermined threshold. As your climb rate increases, as shown in the analog vario display, the frequency and pitch of the beep increase linearly. The rate at which the pitch and frequency increase can be set in the Vario Option-Mode (option 4). The threshold at which the beeping starts can be set in the Vario Option-Mode (option 3). By adjusting these two values you can optimize the vario acoustic to suit your soaring conditions. In option 5 of the Vario Option-Mode, Automatic Scale Indication (ASI) can be turned on. With ASI turned on there will be two styles of vario audio beeping, one for 200-400, 600-800 ft/min ranges and one for 0-200, 400-600, 800-1000 ft/min ranges. With the change in acoustic style you will be alerted when you improve your climb rate (e.g., when you increase you climb rate from 190 ft/min to 210 ft/min.)

Use a series of short presses on the **Vario Key** to set the internal speaker volume. There are six levels ranging from zero volume (silent) to maximum and back to zero. The volume status is shown in three stages in the display.

Voume Indicator

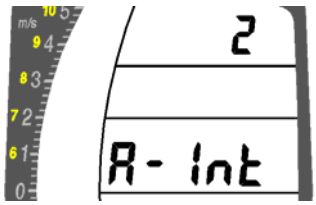
no sound	Level 1 and 2	Level 3 and 4	Level 5 and 6
No Indicator			

When a new level is set, there is a time lag of about 0.5 seconds before it activates. This also applies when switching off from level 6 to level 0.

Set-Mode Vario

Press  3 sec.

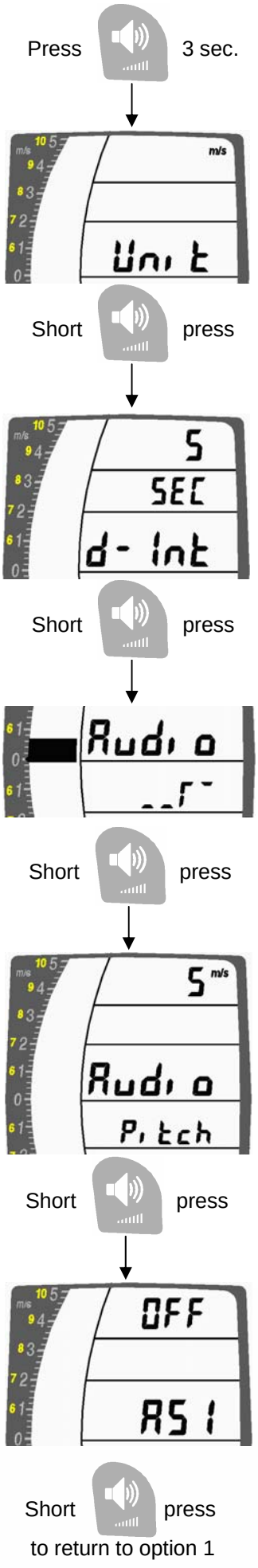
Press the Vario Key for three seconds to put the instrument into Vario Set-Mode.



A-Int = Analog Integrator
The basic damping of the variometer is set here. Four levels are displayed. The settings correspond with the following damping periods:

Level	1	2	3	4
Damping about	0.5 sec	1 sec	2 sec	3 sec

This setting influences all further filters. You can also use it as a turbulence filter: in still air set damping to 1, and in turbulent air set it to 3 or 4.



Option-Mode Vario

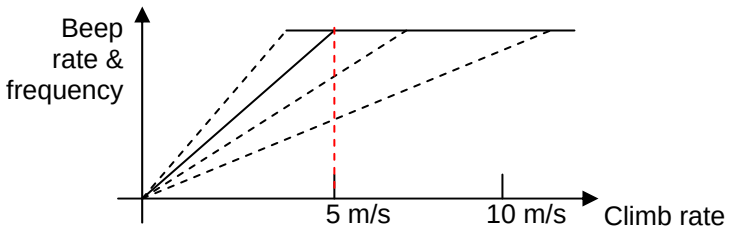
Press the Vario Key for three seconds while in Set-Mode to bring the instrument into Option-Mode.

Option 1: ***Unit*** [Set units]
Use the Arrow Keys to set the units for the digital vario display here. The options are meters per second (*m/s*) or hundred feet per minute (*ft/min x100*).

Option 2: ***d-Int*** [Digital Integrator]
Use the Arrow Keys to set the averager period for the digital vario. The range is from one second to 30 seconds.

Option 3: ***Audio*** ⎍ [Audio threshold]
Use the Arrow Keys to set the threshold for the climb tone. The level can be set from 4 to 100 ft/min, and is displayed on the analog vario scale (each segment on the scale equals 4 ft/min). The example on the left shows a setting of 12 ft/min. This means the vario will start beeping when your climb rate reaches 12 ft/min.

Option 4: ***Audio Pitch***
As your climb rate increases, the speed and frequency of the vario beep increase proportionally. The rate of this change can be adjusted with the **pitch** setting. The setting range is 3 to 11 meters per second, corresponding to a climb rate of approximately 600 to 2,200 feet per minute. In the graph below, a pitch setting of 5 has been selected which means that the speed and frequency of the acoustic vario beeping will be at its limit at a climb rate of 5m/s (1000 ft/min).

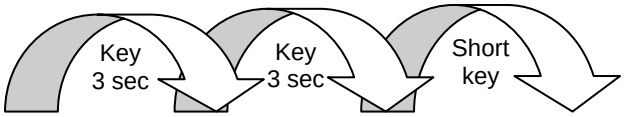


Option 5: ***ASI*** [Acoustic Scale Indication]
Use the Arrow Keys to switch the Audio Scale Indication ON or OFF. With ASI turned on there will be two styles of vario audio beeping, one for 200-400, 600-800 ft/min ranges and one for 0-200, 400-600, 800-1000 ft/min ranges. With the change in acoustic style you will be alerted when you improve your climb rate (e.g., when you increase you climb rate from 190 ft/min to 210 ft/min.)

Sink Alarm, Speed and Temperature

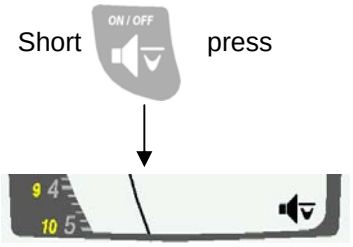
The 6005/10 has a sink alarm that will alert the pilot if he/she is descending faster than a predetermined threshold; an airspeed display with a stall alarm that will alert the pilot if their airspeed falls below a predetermined threshold and a temperature display.

Overview

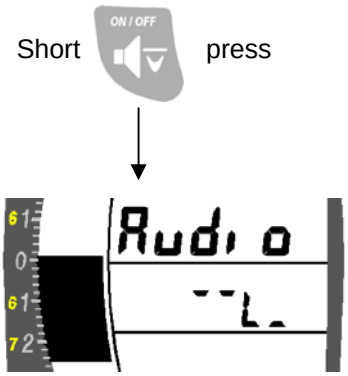


Key	Direct Functions	Set.Mode	Option-Mode 1	2	3	4	5	6
	**Sink Alarm** Audio On/Off	**Audio** Sink alarm threshold ▲▼	**Unit** TEMP °C, °F	**Corr** Temp Sensor -8.0 to +7.9	**Unit** Speed km/h, kts, mph	**Stall** Stall-speed	**Corr SPEED** speed corretion +/- 50%	**SPEED diSP** change speed / temp display

Sink alarm



Press the Sink Alarm Key to switch the Sink Alarm *ON* or *OFF* The Sink Alarm icon will appear on the display when the Sink Alarm is *ON*.



Set-Mode Sink Alarm

Press the Sink Alarm Key for three seconds to brings the instrument into Sink Alarm Set-Mode. Use the Arrow Keys to adjust the Sink Alarm Threshold between 40 and 2,000 ft/min.

Temperature Display

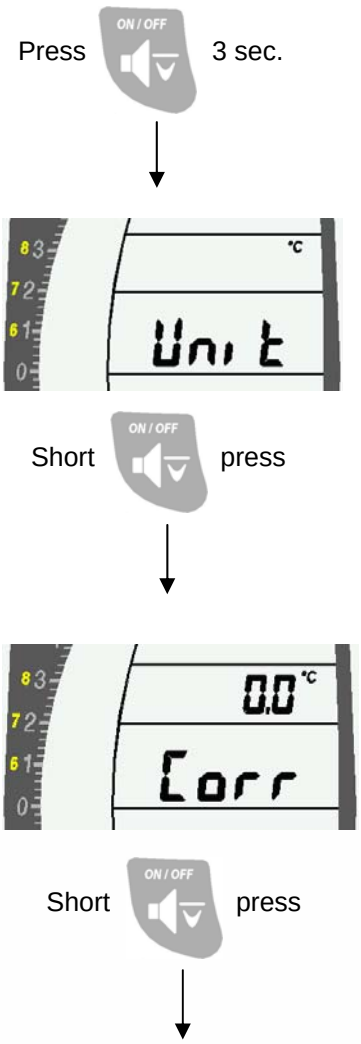
Without a speed sensor plugged into the 6005/10, the temp/speed display will show ambient temperature. If a speed sensor is connected, then the display will alternate between temperature and speed according to the interval set in the Option-Mode for the Sink Alarm Key (option 6). Note: The temperature reading is delayed when there is a rapid change in temperature since the temperature sensor is inside the housing.

Airspeed Display

If an optional airspeed sensor is plugged into the 6005/10, airspeed will be shown in the airspeed/temperature display. Speed sensors from the 3000 or 4000 Series can also be used with this instrument. The accuracy of a vane wheel sensor is highly dependent on its point of attachment. Consequently it is recommended that the sensor be fastened to the glider in the same position each time you fly. If necessary, the displayed airspeed can be corrected for inaccuracy caused by sensor placement or sensor tolerance in the Option-Mode for the Sink Alarm Key (option 5). The temperature can be set to alternate with airspeed speed display in Option-Mode for the Sink Alarm Key (option 6).

Stall Alarm

Provided that a sensor is plugged in, the 6005/10 has a stall alarm that will sound if your airspeed falls below a preset threshold. The threshold can be set in the Option-Mode for the Sink Alarm key. If no sink alarm is desired, set the threshold to zero.

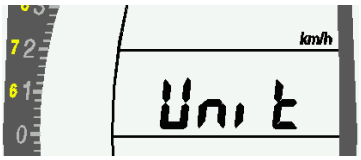


Option-Mode Temp/Speed

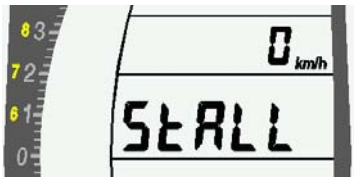
Press the Sink Alarm Key for three seconds while in the Set-Mode to bring the instrument into Option-Mode.

Option 1: ***Unit Temperature***
Use the Arrow Keys to set the units for the temperature display (either **°C** or **°F**).

Option 2: ***Corr*** [Temperature correction]
Use the Arrow Keys to correct temperature deviation. The maximum correction values are -14.4°F to +14.2°F (-8.0°C to +7.9°C). This correction is only necessary when if the temperature sensor display is wrong. Be aware that it is difficult it to measure temperature exactly, since the sensor is measures the temperature **inside** the instrument – so it may not match the ambient air temperature.



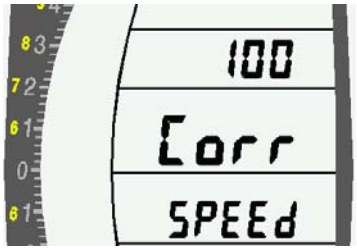
Short  press



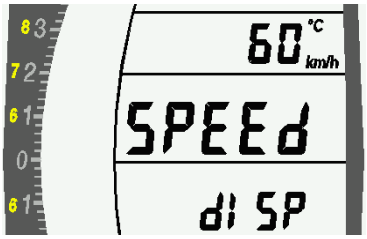
Option 3: ***Unit*** [Set speed units]
Use the Arrow Keys to set the units for the speed display. The choices are kilometers per hour (*km/h*), knots or (*kts*), or miles per hour (*mph*).

Option 4: ***STALL***
The Stall Alarm threshold can be set from 6 mph upward, using the Arrow Keys. You can switch the Stall Alarm off by setting it to 0 mph

Short  press



Short  press



Short  press

to return to option 1

Option 5: ***Corr SPEED*** [Airspeed correction]
Use the Arrow Keys to set an airspeed correction value to compensate for sensor inaccuracy or errors created by the sensor placement. The correction can be set to +/- 50% of measured airspeed, in 1% increments.

The accuracy of the speed displayed is greatly influenced by the mounting position of the speed sensor. Therefore, you should take care to mount it in clear, unobstructed air – both fore and aft of the sensor.

Option 6: ***SPEED DISP*** [Speed Display]
SPEED DISP shows whether, and at what time interval, the display will alternate between airspeed and temperature.

The Use the Arrow Keys to choose from the following can be chosen:

- speed only
- change after 30 seconds
- change after 60 seconds
- change after 120 seconds

The temperature display will appear for four seconds. If no speed sensor is plugged in, only temperature will be displayed.

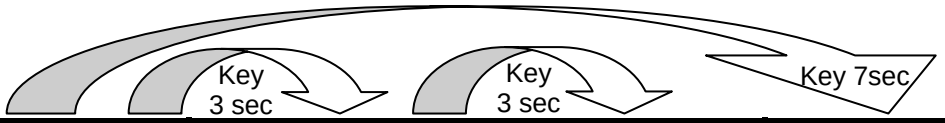
Time Functions

The 6005/10 has **three** independent chronometers: a **real-time clock**, a **stopwatch** and a **flight timer**.

Use a series of short presses on the *TIME/CHRONO/MEMO* Key to alternate among the time, stopwatch and memory displays.

Time Function Overview

Time & Memo



Key	Direct Functions	Set [1]	Option [1]	Instrument Off
	**TIME**	set time,year, date	time format 12 hr or 24 hr	Off with confirmation
	CHRONO			Off with conformation
	MEMO	clear logged flights with confirmation;	Set parameters to record [2] *ALT1, ALT1* and *°F*, or *ALT1* and *mph*	Off with conformation
		set barograph interval[2] *1, 5, 15 sec, CLEAR ALL, ON/OFF, DEL BARO* (6010 only)		

[1] only if no flight acceptance is detected

[2] only if no flight acceptance is detected

CHRONO

The **stopwatch** is an independent chronometer that can be used to measure elapsed time (e.g., measure the time it takes to run down a ridge and back).

When in TIME or CHRONO display, use a short press on the START/STOP/RESET Key (the up arrow) to start and stop the stopwatch. There are instances where the stopwatch is not displayed depending on which mode the instrument is in – however it will continue to run until it is stopped (or the instrument is switched off). A three-second press on the START/STOP/RESET Key will reset the stopwatch to zero.

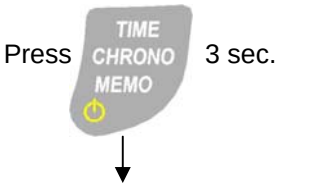
Flight Timer

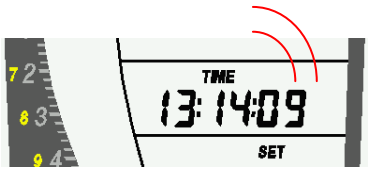
The flight timer is an independent stopwatch, which starts automatically after you switch on the instrument. Each call of a **set-mode** resets the flight timer clock to 00:00. If the Set-Mode is accessed, as long as the 6005/10 has not recognized that a flight has begun, the flight timer will reset to zero.

This feature can be used to obtain an accurate start time for the flight timer. For example, press and hold the Alt1 Key just prior to takeoff, make a last minute adjustment to the altitude (if necessary), let the instrument return to the normal flight display on its own and then launch; the instrument will now have your actual start time for the logbook. The flight timer runs until you switch the instrument off and will be stored in the logbook (see Logbook).

Real-time clock

The 6005/10 has a real time clock that displays the time and date even when the instrument is off.



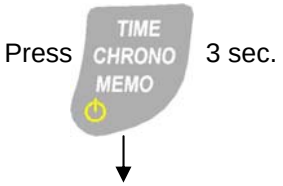


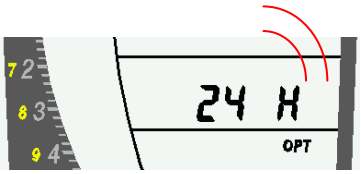
Set-Mode TIME

In *TIME* display, press the *TIME* Time Key for three seconds to brings the instrument into *TIME* Time-Set-Mode. On the 6010 the *TIME* Set-Mode is only available when the barograph is not recording.

Pressing the *TIME* Key briefly to move from hours to minutes, year, month, and day, and use the Arrow Keys to set the values for each.

Note: Starting to switch off the instrument will take you into Time Set-Mode. **In order to switch off without setting the time, do not release the key**, but continue to hold it down while the instrument counts down from 3 to 1.





Option-Mode TIME

From *TIME* Set-Mode, press the *TIME* Key for three seconds to bring the instrument into *TIME* Option-Mode.

Use the Arrow Keys to choose between 24-hour and 12-hour (am/pm) time display. **Note: 24 hour format should be used to insure correct flight times in the logbook**

* The time and date can be set on a 6010 with FlyChart.

Logbook

The Flytec 6005/6010 automatically logs each flight, beginning when you turn on the instrument and ending when you turn it off. The maximum values for forty flights are recorded; after that the oldest flight is deleted as each new one is added. The flights are numbered in reverse order, so that #1 is the newest and #40 is the oldest. Flight #0 is the current flight.

The Memo display can be brought up by one or two short presses of the TIME/SPEED/MEMO Key and the current flight will be shown (flight #0). Use the Arrow Keys to cycle through viewing the current (0) and previous (1-40) flights stored in memory. If this is done during a flight, the current flight will not be disrupted. Note: In the MEMO display all values are **static**.

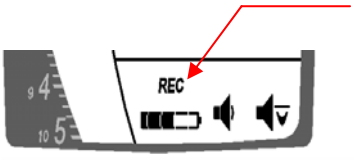
If the beginning of a flight is accepted and you access the MEMO display, the instrument will automatically exit the MEMO display and return to normal flight operation after 12 seconds.

Memo Display

- Graphic display of maximum climb/sink for this flight.
- Maximum average climb and sink values for this flight (display automatically toggles between climb/sink).
- Flight number [a small r after the flight number indicates that a barogram was recorded for this flight, on Model 6010 only].
- Maximum altitude reached for this flight.
- Date of flight.
- Duration of flight.
- Battery, volume and sink alarm display (independent of flight log).

If a flight has been accepted by the instrument it will be stored into the Logbook automatically when the instrument is switched off.

Flight acceptance



For a flight to be recorded in the logbook, an altitude difference of more than +/-100 feet (30 meters) and a flight time of more than two minutes must be achieved (this prevents wasted flights in the logbook). The **flight acceptance** on a 6010 will by confirmed with the **REC** Indicator.

On the 6010 Instrument and using FlyChart software, it is possible to change the altitude differential threshold for “flight acceptance” between 0 and 100 meters. Using FlyChart it is also possible to invoke a peak-value time delay of 0 to 2500 seconds which will prevent the 6010 from recording vario peaks encountered when tow launching.

Barograph Recording [Model 6010]

Recording Start / Stop / Store

The 6010 is able to record the altitude profile of a flight as well as ambient temperature or airspeed. When the barograph feature is turned on (in *MEMO Set-Mode)*, the barogram recording will start as soon as the instrument is switched on. The number of the current flight being recorded is 0; however the flight will only be stored in the barogram memory and in the Logbook if the requirements for **flight acceptance** have been fulfilled. While a flight is being recorded, you cannot enter Set-Mode or Option-Mode for **MEMO, TIME, ALT1 or ALT2**. This is to prevent manipulation of barogram data.

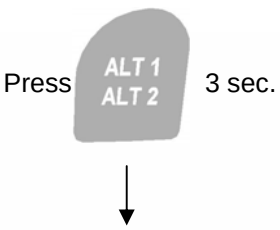
If the **Set-Mode** is accessed, and an actual flight has not started yet (no flight acceptance), the flight timer will reset to zero. This feature can be used to obtain an accurate start time for the flight timer. For example, press and hold the Alt1 Key just prior to takeoff, make a last minute adjustment to the altitude (if necessary), let the instrument return to the normal flight display on its own and then launch; the instrument will now have your actual start time for the logbook. Be sure to switch off the 6010 when you land to insure an accurate stop time for the flight time in the logbook. If there is a valid flight being recorded and you access the MEMO display, the instrument will automatically exit the MEMO display and return to normal flight operation after 12 seconds.

The barogram memory is approximately 130 hours of altitude recording at 15-second intervals. The recording duration is proportionately reduced if a shorter record interval is selected and if temperature or airspeed is also recorded. If the 6010 does not have sufficient empty memory for the recording of the current flight, the **barogram of the oldest flight** will automatically be **deleted**.

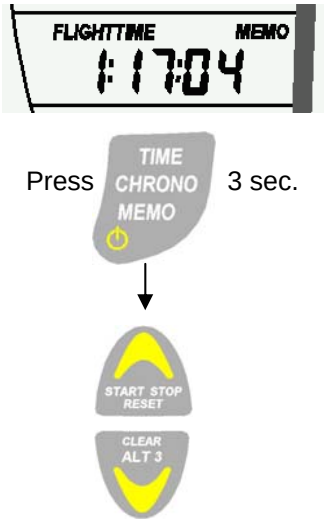
The instrument transfers recorded data to static memory at two-minute intervals. In the event of a power interruption, only the last two minutes of data would be missing from a barogram. The barogram memory in the 6010 is static; consequently if the batteries become fully depleted or are removed the recorded data will remain intact for 10+ years.

Time Marker

If the 6010 is recording a barogram, markers can be inserted by pressing the ALT1/ ALT2 key, a confirmation tone will be given and the marker number will be briefly shown in ALT1 display. This feature can be used to mark events on the barogram (e.g. passing a turn point or landmark, etc.). When a marker is set it will be recorded in the barogram at the next record interval according to the selected record rate (1, 5, or 15 seconds).



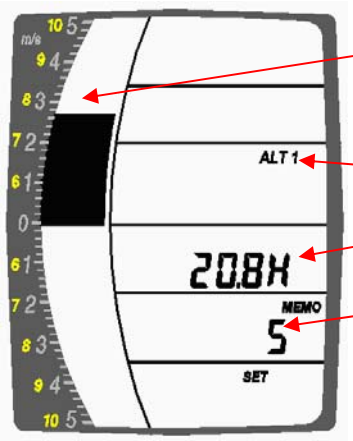
If flight **acceptance** is present, a 3-second press of the **ALT 1/ALT2** Key will set a marker.



Set-Mode MEMO [Model 6010]

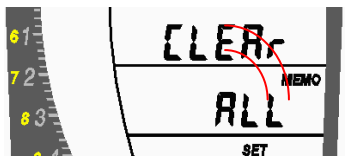
While in *MEMO* display, use a 3-second press on the *MEMO* Key to bring the instrument into Memory Set-Mode. The display will now show the parameters to be recorded, the recording time in hours, and the record interval. Note: The set mode is only active if l no **flight acceptance** is present.

Use the Arrow Keys to scroll through the possible record intervals and clearing options: **1**, **5**, or **15**, **CLEAR ALL**, **OFF and DEL BARO** (visible only if you have recorded barograms). If you select *OFF*, the barograph recording feature will be disabled and only maximum values will be stored in the flight log.



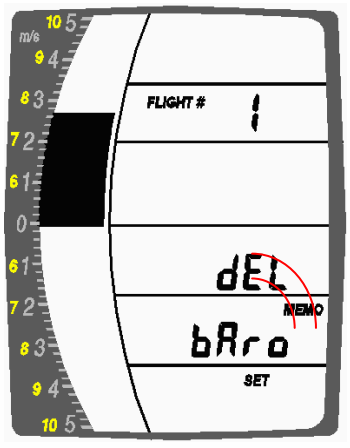
- Barograph storage capacity. The scale will empty as the barogram memory is filled. After that, the oldest flights will be overwritten.
- The parameters to be recorded are set in MEMO Option-Mode (see below).
- Remaining barograph record time. Takes into account the chosen recording interval and available storage capacity.
- Recording interval in seconds.

Clear All Barograms



As you cycle through the choices in MEMO Set-Mode using short presses on the arrow Keys, you arrive at CLEAR ALL, which allows you to delete all the recordings and the logbook. To confirm, press the ALT1/ALT2 Key for at least three seconds until you hear the confirmation tone.

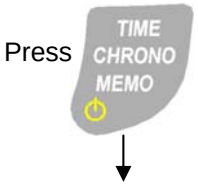
Delete a Barogram



If you have barogram recorded in the 6010 and you cycle through the choices in MEMO Set-Mode with short presses on the arrow Keys you will arrive at DEL BARO, shown with the flight number of your most recent flight that has a barogram (i.e., if no barograph recording was made for Flight #1, Flight #2 will appear, and so on). To delete this flight, press the **ALT 1/ALT2 Key** for at least three seconds.

No single flights can be deleted directly from the logbook. You can only delete your most recent barogram; barograms recorded later in the logbook cannot be deleted before those recorded earlier have been deleted.

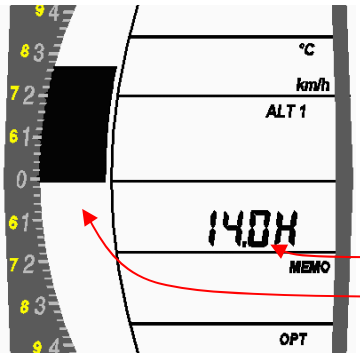
Option-Mode MEMO



From MEMO Set-Mode, press the MEMO Key for three seconds to bring the instrument into MEMO Option-Mode.

The parameters to be recorded on the barogram are set here. Use the Arrow Keys to cycle through the combinations:

- **ALT1**: only Altitude 1
- **ALT1** and **°F**: altitude and temperature
- **ALT1** and **mph**: altitude and speed



- Available recording time with the actual recording
- Capacity and the chosen parameters

Connection to a PC [Model 6010]

Using FlyChart and a data cable you can download the 6010 Flight memory to a PC where you can view and print recorded flights. Data transmission (upload and download) is initiated with the Download button in FlyChart, and the **6010 must be off**. FlyChart v4.53 or later is required for use with the 6010 and is available for download at www.flytec.com. Please follow the download and installation instructions found there.

After installing FlyChart you will notice that there is a comment in the FlyChart window that says “No License” and the number of flights remaining. Your 6010 came with a license code that will validate your copy of FlyChart. The instructions for installing the license code are contained in the Readme_E file in the FlyChart directory. Once the license number is properly installed the “no license” comment will be removed. The 6010 is a serial device and comes with a cable to connect the 6010 to a PC COM port. If your PC lacks a COM port then you must use a USB adapter available from Flytec USA, and from computer and office retailers.

PC Instrument Configuration [Model 6010]

You can also conveniently configure all of the user settings of the 6010. Setting up your instrument with FlyChart is very convenient, and multiple profiles can be created, saved and transferred. There are a number of additional 6010 user settings that can be set in FlyChart (e.g. automatic shut-off time, altitude threshold for declaring the beginning of a flight, etc.) that cannot be set from the 6010 Set- or Option-Mode.

Battery

The 6005/6010 can operate on 2 AA 1.5V Alkaline or 2 AA 1.2V NiMh batteries. The battery compartment is accessed by removing the slotted screw in the battery door on the rear of the housing.

Battery condition

During the switching-on process, the instrument will briefly show the relative battery condition in the analog vario scale (Po shown in the digital vario display) where ½ scale equates roughly to batteries that have ½ of their life remaining. When the 6005/6010 is in normal operation the condition of the battery is continuously shown in the lower window of the LCD.

empty 50% full

Battery change

When it becomes necessary to change the batteries verify that the 6005/10 is switched off! Remove one of the spent batteries and replace with a fresh one, then remove the other spent battery and replace it with a fresh one. If the power interruption is less than 30-seconds the time and date will be preserved and will not need to be reset. If the above procedure is followed there will be minimal power interruption to the CPU. If the 6005/10 does not show the time/date after replacing the batteries please follow the procedure in the section *Malfunction/Resetting the Instrument.*

Malfunction / Resetting the Instrument

In the event that the 6005/10 behaves oddly or gives an error message, remove the batteries for 5-minutes, then press and hold the on/off key for 1-minute. After the batteries are replaced, the instrument performs a self check. If the problem persists, contact your local Flytec Distributor (www.flytec.ch, www.flytec.com, www.flytec.fr) to determine the appropriate service location to send your instrument for repair.

Lo Batt	Battery voltage less than 2.1 V. Please change batteries.
Temperature field ***Lo***	Temperature is less than -72.4°F (-50° C).
Temperature field ***Hi***	Temperature is higher than 168.8°F (76° C).
* Temperature field ***Err***	Temperature sensor is faulty.
Speed display ***Hi***	Speed is higher than 99 mph (159 km/h).
* Speed display ***Err***	Frequency converter for measuring speed is faulty.
**** AdErr***	Analog/Digital -converter for measuring pressure is faulty.

Maintenance and Care

Water Damage

Water damage invalidates the warantee. If the instrument gets wet, proceed as follows:

- remove the batteries immediately
- remove the housing screws and open the housing
- dry the instrument in warm air from a hair dryer
- If the instrument got wet in salt or contaminated water thoroughly rinse all interior components with warm water before drying Send the instrument, as soon as possible, to Flytec USA for customers in North America. Customers outside North America should send their instrument to Flytec AG in Switzerland.
- **Warning: NEVER dry the instrument in a microwave oven**

Calibration

Altitude, temperature and airspeed can be corrected in their respective Option-Modes; however, the correction values for these functions should only be altered for good reason (i.e. you are sure that the displayed values are inaccurate). For information on calibration contact Flytec AG at flytec@swissonline.ch or Flytec USA at info@flytec.com

Warranty

Our instruments carry a 24-month warranty. However, physical damage such as a broken housing or display window as well as damage resulting from abuse, battery leakage and water landings are excluded from this warranty

Disclaimer

Flytec AG and Flytec USA accept no liability for faults arising from any abuse or unapproved use of your instrument. In rare cases, it may happen that the instrument does not provide any data at all, or the data is incorrect. FLYTEC is not responsible for any damages due to the incorrect functioning of the instrument.

Responsibility for ensuring safe flight lies with the pilot alone.

Technical Data

Size:	4-3/8 x 2-3/4 x 13/16 inches (138 x 74 x 23 mm)
Weight:	6.278 ounces (178 grams) (with 2 alkaline batteries, without mountings)
Electrical Power Supply:	2 AA alkaline batteries AA or NiMH batteries
Battery Life:	> 250 hours with 2 alkaline batteries
Altimeter:	max. 37,700 feet (11,500 m), 3 ft (1 m) steps
QNH air pressure:	hPa or inHg
Variometer:	analog ± 2,000 ft/min (10 m/s), 40 ft/min (0.2 m/s) steps digital ± 19,200 ft/min (96 m/s), 10 ft/min (0.1 m/s) steps
Integrator (Vario Averager):	adjustable from 1 sec to 30 sec
Speed Display:	digital, 0 to 99 mph (160 km/h), displayed in km/h, kts or mph resolution: 1 mph, 1 km/h or, 1 kts calibration range ± 50%
Temperature Display:	-72.4°F to 168.8°F (- 50° C to 76° C) units: °F or °C resolution: 0.1°F (0.1°C) accuracy: ± 0.5° C, calibration possible
Time Functions:	real time clock (12h/24h) with date stop watch up to 99 hrs 59 min 59 sec automatic calendar, automatic logging
Max. Barograph Recording Time [6010]:	130 hours. flying time recording interval: 1 sec, 5 sec or 15 sec recording of altitude, altitude and speed, or altitude and temperature
Number of Logged Flights:	40 with date, start time, flying time, max. altitude and min./max. vario
Operating Temperature Range:	5°F to 140°F (-15°C to +60 °C)
Storage Temperature Range:	-22°F to 158°F (-30°C to +70 °C)

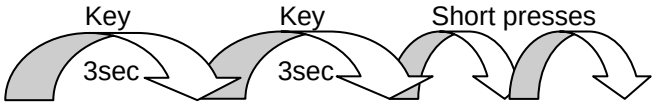
Brackets and airspeed sensors for hang gliders and paragliders are available**.**

The technical data may be changed at any time.

Function Overview

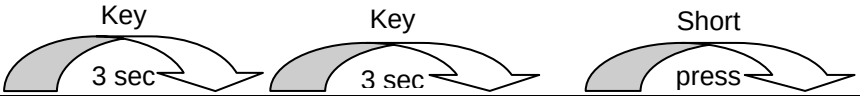
Key	Short Press in RUN Mode	3 sec. Press in RUN Mode	Function in SET Mode	Function in OPTION Mode
START STOP RESET	CHRONO Start -Stop	Reset Stopwatch	Adjust value up	Adjust value up
CLEAR ALT 3	Clear ALT 3		Adjust value down	Adjust value down

Vario & Audio



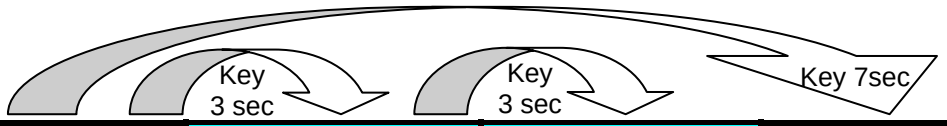
Key	Direct Functions	Set-Mode	Option- Mode 1	2	3	4	5	6
	Vario Volume 6 Levels	**A-Int** basic damping 1,2,3,4	**Unit** climb rate m/s, or ft/minx10	**d-Int** averager period 1 - 30 s	**Audio** Vario Audio threshold 4 ft/min to 80 ft/min	**Audio Pitch** 3 to 11 m/s 600-2200 ft/min	**ASI** On/Off	
ON / OFF	**Sinkalarm** Audio On/Off	**Audio** Sink alarm threshold	**Unit** TEMP °C, °F	**Corr** Temp Sensor -8.0 to +7.9	**Unit** Speed km/h, kts, mph	**Stall** Stall speed	**Corr SPEED** speed corretion +/- 50%	**SPEED diSP** change speed / temp display

Altimeter



Key	Direct Functions	Set-Mode [1]	Option-Mode [1] 1	2	3
ALT 1 ALT 2	**ALT 1**	*ALT1* Altitude 1 starting point set with Arrow Keys or choose preset 1 to 5 with *MEMO* Key	*Unit* Altitude 1 *m* or *ft*	*Unit* QNH pressure *hPa* or *inHg*	*Corr* pressure sensor correction +/-47.9 hPa
	ALT 2	*ALT2* Altitude 2 starting point set with Arrow Keys	*Unit* Altitude 2 *m* or *ft*	*REL/AbS* relative or absolute mode for Altitude 2	

Time & Memo



Key	Direct Functions	Set-Mode [1]	Option-Mode [1]	Instrument Off
TIME CHRONO MEMO	**TIME**	set time,year, date	time format 12 hr or 24 hr	Off with confirmation
	CHRONO	No Set-mode	No Option-Mode	Off with conformation
	MEMO	clear logged flights with confirmation;	Set parameters to record [2] *ALT1, ALT1* and *°F*, or *ALT1* and *mph*	Off with conformation
		set barograph interval[2] *1, 5, 15 sec, CLEAR ALL, ON/OFF, DEL BARO* (6010 only)		

[1] only if no flight acceptance is detected

[2] Model 6010 only