

# CONTENTS

## Specifications

Units of measurement	3
Altimeter	3
Barometer	3
Variometer	4
Variometer acoustics	4
Stop watch	5
Barograph	5
PC Software (option)	5
Log book	5
Temperature measurement of the sleeve	5
Levels of superheating alarm	6
Temperature measurement of ambient air	6
Factory settings	6
Batteries	6
What to do after an immersion of the ACT 8000?	6

## An introduction to the use of the instrument

Markings on the housing for use with the analogue variometer	7
Markings on the housing and the buttons of the instrument	7
Colours used for markings on housing and buttons	7
Hints for a simplified use	7

## Instructions in a nutshell

Basic functions	8
Basic adjustments	9
Stop watch and log book	10
Barograph	11

<b>Security measures</b>	<b>12</b>
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## **AIRCOTEC    ACT 8000**

### **Congratulations !**

With the Aircotec ACT8000 you have acquired a Swiss quality product. Besides state-of-the-art technology with most recent electronics it also includes a thought-out operating concept and a sturdy construction.

We do hope that ACT 8000 will be your companion on many memorable flights.

**Aircotec Horw, Switzerland**

## **Specifications**

### **Units of measurement**

The instrument can be used in the metric and the BSI-system. The units of measurement for altimeter and variometer can be easily changed over from Meter to Feet.

QNH values can be displayed in hPa or in "Inches x 100".

Temperatures can be displayed in ° Celsius or in ° Fahrenheit.

### **Altimeter**

The absolute altitude "Abs" is adjusted at the altitude above sea level of your actual position. Measurement goes up to 8000 m.

If the barometric pressure is known, the adjustment of the altitude can also be effected by using the QNH display. The range of adjustment is situated between 970 hPa and 1'050 hPa.

Gain or loss in altitude can be displayed in the temporary-altitude mode. No more need to do mental arithmetic's, simply adjust the temporary altitude on zero.

### **Barometer**

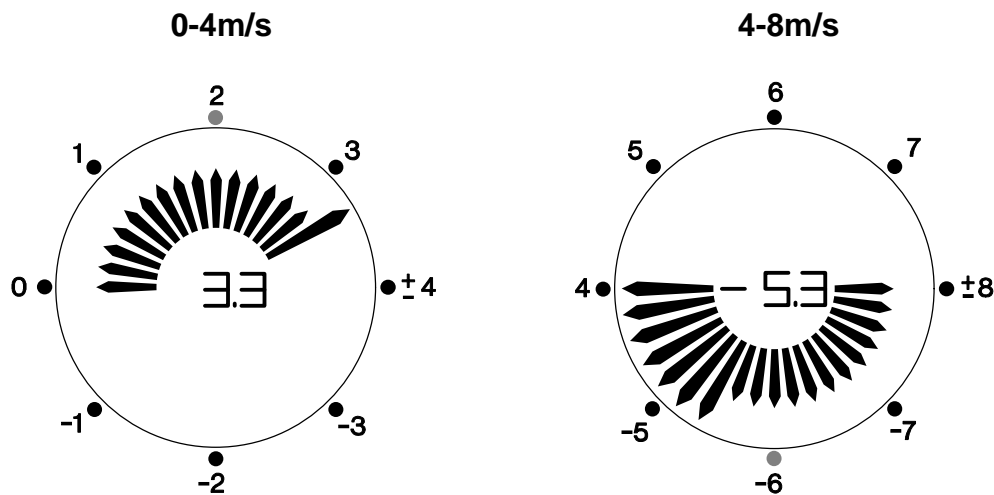
If you want to use the ACT 8000 as a barometer you should first adjust the altitude above sea level. Once you have done this simply switch to QNH to read the barometric pressure in hPa or inches. Regular observations of the barometric pressure will give you first signs of changing weather.

## Variometer

For a better readability climb- and sink rates are displayed on a circular pointer scale and with a numerical value. The pointer range covers  $\pm 8$  m/s and the numerical range  $\pm 20$  m/s.

The full pointer range is covered in such a manner that up to  $\pm 4$  m/s the display shows a single pointer, values between 4 and 8 m/s are displayed by means of a spread out sector with full pointers.

### Example:



## Variometer acoustics

You have a choice between **climb sound** and **sink sound**.

The threshold for the sound can be adjusted between  $\pm 0.1$  and  $\pm 0.5$  m/s

**The factory setting is an early sink warning at - 0,1m/s.**

Climb and sink sound offer a selection of two interval modes

a) duration of sound is fixed, duration of interval is variable

— — — — —

b) variations with equal duration of sound and interval:

— — — — —

The signal of the ACT8000 can be modulated to your liking between quiet and lively.

**The factory setting is:**

- **short interval**

- **fixed duration of sound, variable duration of interval**

(For adjustments see: Instructions in a nutshell)

## **Stop watch**

Should you forget to start the stop watch, starting will be automatic once the balloon reaches a climb rate of 0,3m/s. This automatic start will be confirmed and the display will light up when the gain of altitude in the following 30 seconds will be 10m or more. If this is not the case there will be an internal reset of the stop watch. The stop watch will be stopped by hand. There is an automatic stop when the log book mode is selected or when the instrument is switched off.

## **Barograph**

The altitude is measured up to an altitude of 8000 meter above sea level and will be recorded together with the sleeve temperature. The recording cycle offers three options: 5, 10 or 20 seconds.

Barograms of several flights can be memorised. The total memory capacity is approximately 57 hours when using the 20 seconds recording cycle. When using another recording cycle the memory capacity will change accordingly. Should the time of the actual flight exceed the free available capacity of the memory ACT 8000 will automatically erase the oldest barogram in the memory to ensure that the new data can be recorded. Overflown beacons can be marked with a trigger. These marks will appear as a broken line on the barogram. Barograms can be printed individually or as a directory. Both battery operated or mains operated printers can be used, linked to the ACT 8000 by a communications cable. Two altitude rulers are available :

- the fixed ruler from 0 - 6000m or
- the optimised ruler which automatically adapts the maximum altitude.

## **PC Software (option)**

Data processing and analysis of individual flights is possible with the help of a PC and the PC-Software: „BaroMaster“.

## **Log book**

Data like maximum sleeve temperature, take-off time, date, year and flight time of the last 20 flights are stored in the memory and can be displayed.

## **Temperature measurement of the sleeve**

The sleeve temperature can be measured directly from the basket with a highly sensitive pyrometer pointed at the top of the balloon. Please make sure that the measurement-cone does not capture the burner's flame. Even if the measured surface is slightly off-centre, the results of the measurement will be practically the same as for a centred measurement. Comparative measurements have shown that sensors installed at only a few millimetres from the sleeve-surface indicated 10-12° C above the real temperature. The method used measures exactly the temperature of the sleeve on a surface with a diameter equal to  $\frac{1}{4}$  of the distance between the pyrometer and the top. The measurement is continuous and the installation of cables or PTT licences for RF-transmission become obsolete. Mounting the instrument will take less than one minute. A lateral alignment of the probe, pointing halfway between the top rim and the lower sleeve edge has proved to be the best. Please make sure that the measurement cone is completely free and not disturbed by any discharge ropes. The exact alignment should be chosen in such a manner the a burner ignition will not activate a temperature alarm. For balloons with a two-point suspension a lateral protruding mounting between the suspensions / burners is recommended.

### Levels of superheating alarm

The acoustic superheating alarm of the ACT 8000 has three adjustable levels. The first level is an advance warning. It is the only alarm that can be switched off by pressing button 3 „Enter“.

### Temperature measurement of ambient air

By pressing a button the temperature inside the housing can be displayed. This temperature approximates the ambient temperature, but an important inertia must be admitted.

### Factory settings

Factory settings can be adjusted at all times (See chapter „Instructions in a nutshell)

### Batteries

ACT8000 functions on two 9V alkaline batteries. At each activation of the instrument the battery voltages will be displayed. This serves your own security! The switch over of the batteries is automatic and the empty battery will be shown on the display. Please change the empty battery before your next flight. If the voltage of the remaining battery drops below 8.3V, the battery symbol starts flashing. In this case both batteries should be changed before the next flight.

### Caution!

Don't use Duracell batteries. Due to their reduced overall length a sufficient pressure on the contacts is not guaranteed. We recommend the use of Japanese, Philips or Varta batteries.

### What to do after an immersion of the ACT 8000?

Proceed as follows:

Remove the batteries from their compartment. Leave the compartment open. Open the housing and drain the water by shaking gently. All parts, except the batteries, should be placed on a board. Slide the board in a half open oven and allow to dry at a temperature of max. 60° C. **Caution! Never place the board in a microwave oven. This will destroy the electronic components.** Leave the instrument open for several more hours. After assembly place a set of new batteries and carry out a complete test of all functions. If **salt water** has penetrated the instrument all electronic parts should be first rinsed with tap water followed by a second rinse with distilled water, before drying. Don't open the **pyrometer**. The pyrometer should be dried with closed and then sent to the factory for testing.

# An introduction to the use of the instrument

## Markings on the housing for use with the analogue variometer

The values of the analogue variometer are the only ones which cannot be displayed on the screen. Therefore they are printed on the housing, around the screen.

Values between 0 and 4 m/s in light grey

Values between 4 and 8 x 100 FPM in yellow.

## Markings on the housing and the buttons of the instrument

The buttons of the ACT 8000 have double-functions in order to control all functions. The double functions are:

- press once
- press and hold

**Press once** is symbolised by a point.

**Press and hold** is symbolised by a stroke

## Colours used for markings on housing and buttons

The colours used for markings on the housing or on the buttons do help us to make a specific adjustment. Meaning of the colours:

- **Light grey** = switch over
- **Yellow** = change numbers and adjustments
- **Green** = time and stop watch. „Time Temp.“ indicates that the temperature at the inside of the housing is displayed for a short while

when commuting between time and stop watch.

- **Blue** = LOG (log book) and all barograph functions.

## Hints for a simplified use

For a normal use it's enough to switch on the instrument, adjust the altitude and switch it off after use. But it makes sense that you should „get out as much as possible“ from such a powerful instrument. Learning this is easy! Just take the instrument in your hand and browse through all the functions by using the following „Instructions in a nutshell“. You too will agree that everything becomes simple once you have understood the logic behind it.

# Instructions in a nutshell

## Basic functions

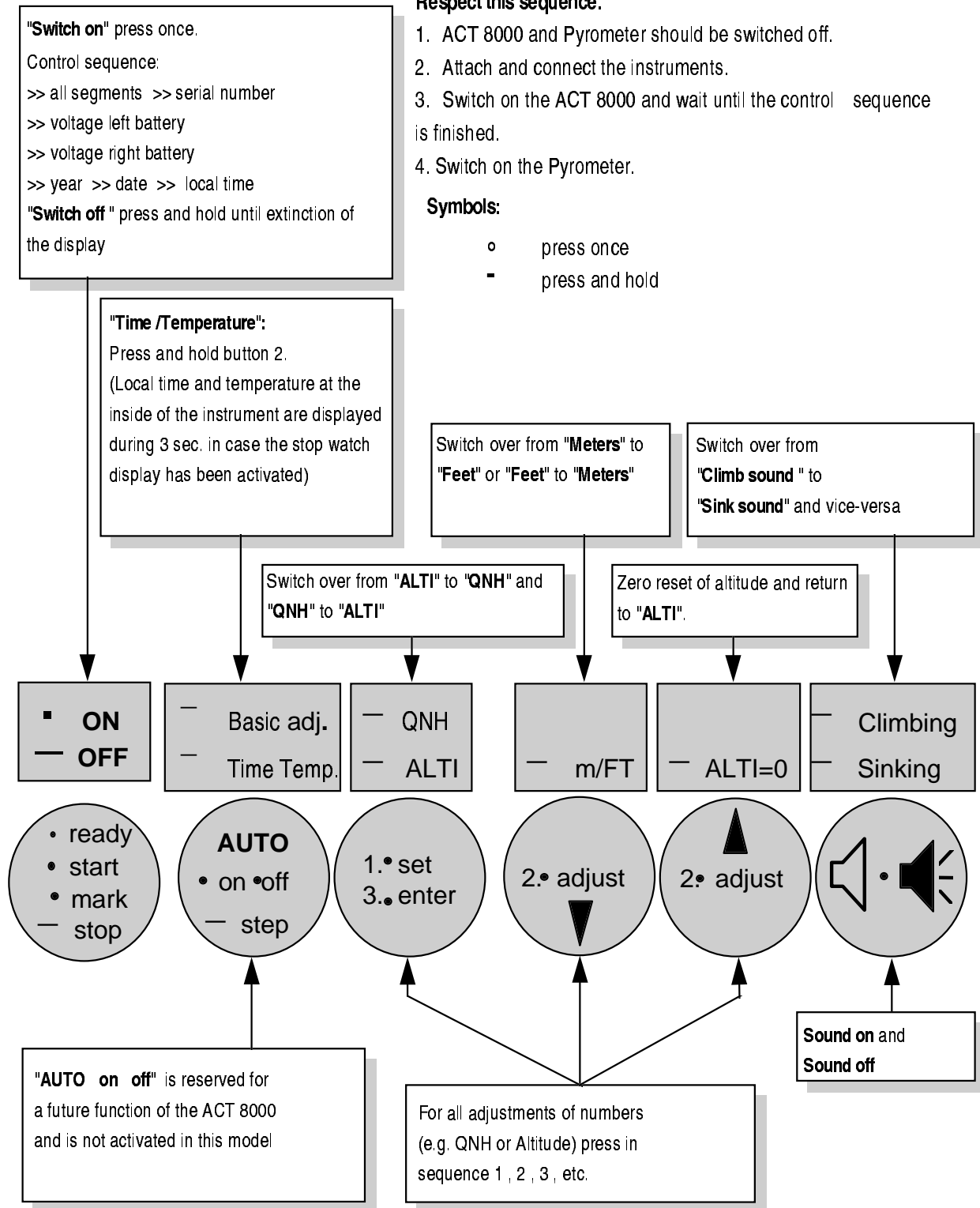
### Caution!

#### Respect this sequence.

1. ACT 8000 and Pyrometer should be switched off.
2. Attach and connect the instruments.
3. Switch on the ACT 8000 and wait until the control sequence is finished.
4. Switch on the Pyrometer.

#### Symbols:

- press once
- press and hold



# Instructions in a nutshell

## Basic adjustments

**"Basic adjustments":** Press and hold button 2.  
**Change values** with buttons 3 and 4/5. in sequence as per yellow markings 1.-2.-3.  
 Press button 3 "**enter**" to return to operation mode

**Sequence of basic adjustments:**

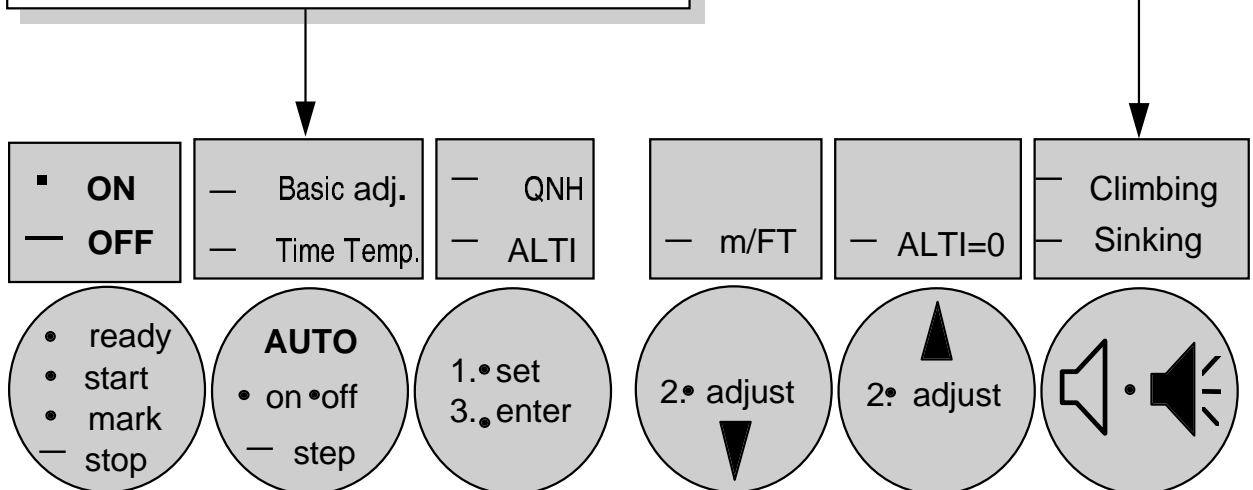
- >> Vario acoustics - Time constant: 0,1,2,3,4 sec.  
**Continue:** Press once on button 2.
- >> Time constant for digital vario display:  
 1, 2, 4 sec. or Mean value over: 10,15, 20, 30 sec.
- >> Time constant for analogue vario display:  
 1, 2, 3, 4 sec.
- >> Threshold for climb sound / sink sound:  
 (± 0,1 à ± 0,5 m/s)
- >> ° Celsius or ° Fahrenheit
- >> km, MPH or knots
- >> QNH in hPa or INCHES X 100
- >> Superheating alarm levels:  
**A1** (70-100°C)    **A2** (80- 120°C)    **A3** (100-160°C)
- >> Year, >> Month, >> Local time.

### Explanations:

The **Time constant** is the time lapse between the moment of measurement and the moment the measured value appears in the display, according to an exponential function.  
 When the chosen time constant has elapsed, the display has reached 70% of the measured value.  
 The **Mean value** displays the average of the measured values during the chosen lapse of time.

### Choice of vario acoustics:

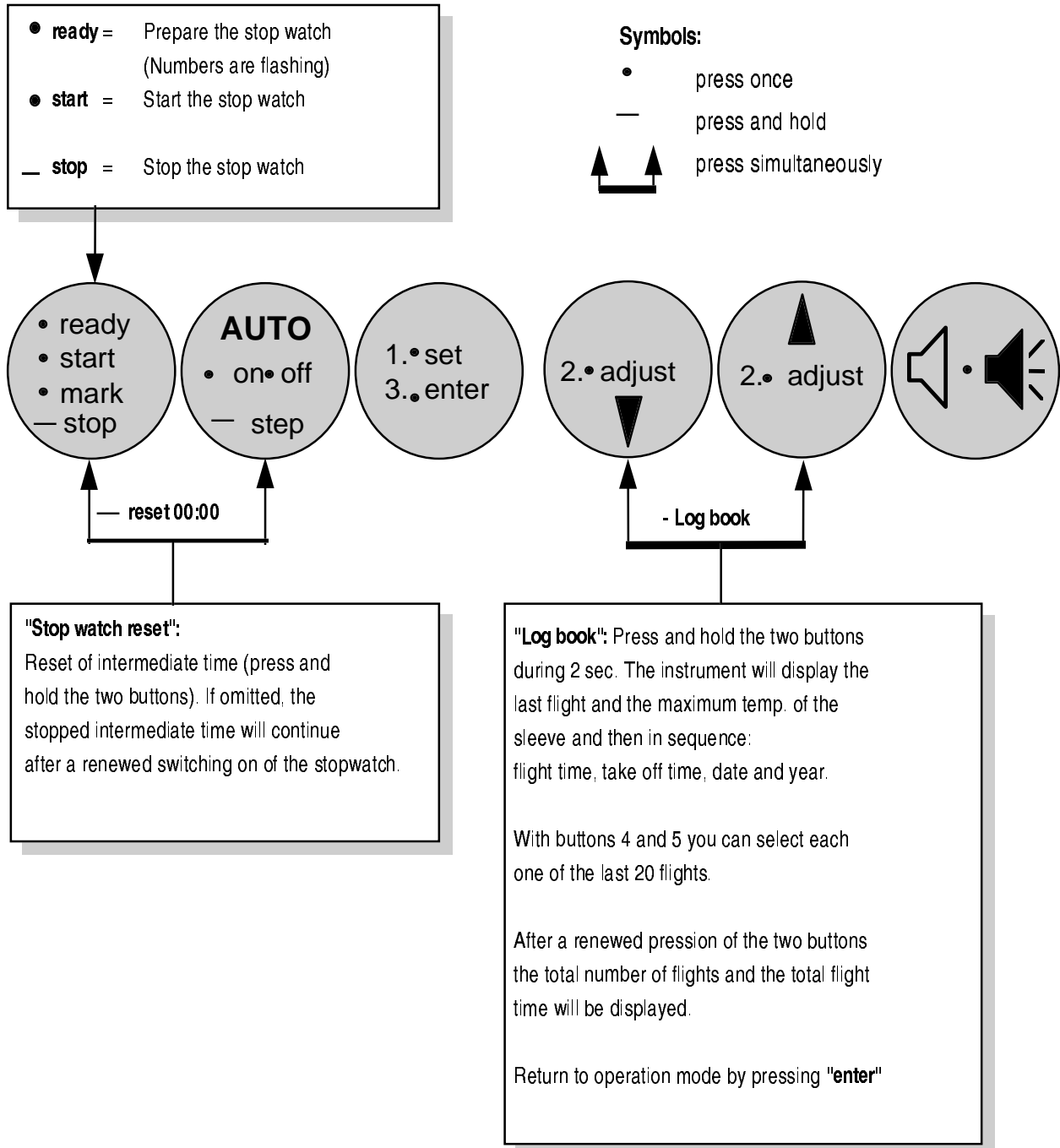
Press and hold button 6 and switch on the instrument with button 1.  
 Select the acoustics with button 6 and confirm with button 3 "**enter**"





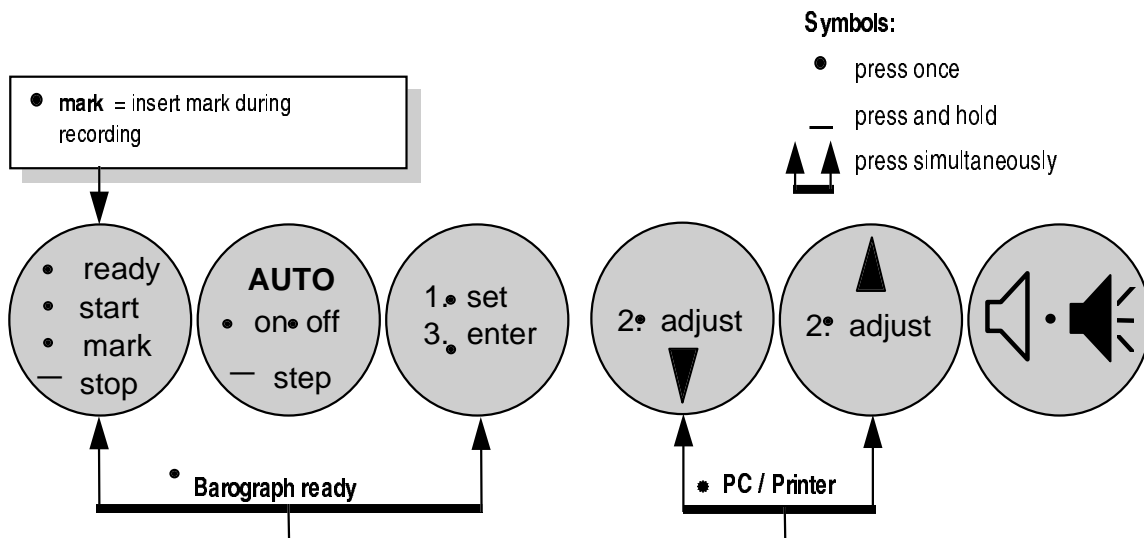
# Instructions in a nutshell

## Stop watch and log book



# Instructions in a nutshell

## Barograph



### "Activate Barograph":

Press and hold both buttons simultaneously. On the right screen are displayed: barogram number, local time and a balloon pictogram for "barograph activated".

Check date, year, and free memory capacity with "step".

The data storage cycle can be adjusted on 5, 10 or 20 sec. with buttons 3 and 4/5 in sequence as per yellow markings 1.-2.-3.

### "Barograph start / stop":

Is carried out with the stopwatch for both manual and automatic start.

### "Erase barograms":

Press and hold the two buttons during 10 sec.

After 5 seconds the message **Clb = Clear buffer** appears, and after 5 more seconds a beep indicates that all barograms are erased.

\* modification possible with buttons 3 and 4/5 in sequence as per yellow markings 1.-2.-3 .

### "PC / Printer":

Press both buttons simultaneously.

(For the PC software "Baromaster" see separate instructions).

Select the other printing criteria with buttons 4 and 5.

#### >> \* Type of printer

**Pr 1** = Battery printer "P40S"

**Pr 2** = Mains operated printer

#### >> Dir = Directory

(To print the directory confirm with "enter"; if not requested proceed to next point)

#### >> Pr ALL = Print all flights.

(If yes, confirm with "enter"; if not, proceed to next point)

#### >> \* Nr 001 = Print a specific flight.

#### >> \* Fr = Fixed ruler with scale up to 6000m

or **Or** = Optimised ruler adjusted on multiples of 1000 m

#### >> run = Print.

## **Security measures**

The ACT 8000 and the pyrometer must be fixed in such a way that the pilot and his passengers cannot be injured against or by the instruments. The instruments must be secured in such a way that they won't detach during the flight. The pilot should make sure that none of the instruments can fall down and injure persons or damage objects.

The attachments of the instruments should be checked before each take off and be changed in case of damage.

Before each flight the pilot should convince himself of the perfect functioning of the instrument and the batteries that have been fitted.

Changing weather conditions, inadequate and insufficient indications of altitudes on maps, erroneous altitude adjustments of the instrument or a defect which cannot be excluded, can lead to misinterpretations. Therefore the pilot's own evaluation, his experience and his know how should prevail over technical instruments. This is in first line the case in critical situations like the approach of high tension lines or similar situations, especially before and during landing.