

Operating Manual

Deutsch

English

Français



ALADIN[®] PRIME

ALADIN[®] TEC

UWATEC[®]

SWISS MADE BY UWATEC AG

You must carefully read and understand this entire manual before using your Aladin® *PRIME* or Aladin® *TEC*.



Diving has many inherent risks. Even if you follow the instructions of this manual in a careful manner, it is still possible that you may be seriously injured or die from decompression sickness, oxygen toxicity or some other inherent risk of scuba with Nitrox or compressed air. Unless you are fully aware of these risks and are willing to personally accept and assume responsibility for those risks, do not use Aladin® *PRIME* or Aladin® *TEC*.

Guidelines for the use of Aladin® *PRIME* and Aladin® *TEC*:

The following guidelines for using Aladin® *PRIME* and Aladin® *TEC* are derived from the latest medical research and the recommendations of the American Academy of Underwater Sciences for diving with diving computers. Following these guidelines will greatly increase your safety while diving, but cannot guarantee that decompression sickness or oxygen toxicity will not occur.

- Aladin® *PRIME* and Aladin® *TEC* are designed for dives with Nitrox (Aladin® *PRIME* max.50%O₂, Aladin® *TEC* max.100%O₂) and compressed air (21%O₂) only. Do not use Aladin® *PRIME* or Aladin® *TEC* for dives made with other mixed gases.
- It is absolutely necessary to check the set mixture before each dive and to compare it to the gas mixture currently used. Always remember: setting an incorrect mixture carries an inherent risk of decompression sickness and/or oxygen toxicity! Maximum deviation from the measured mixture must not exceed 1% O₂. An incorrect gas mixture can be lethal!
- Only use Aladin® *PRIME* and Aladin® *TEC* with open circuit breathing systems. Aladin® *PRIME* and Aladin® *TEC* must be set for a determined gas mixture.
- Only use Aladin® *PRIME* and Aladin® *TEC* for diving with an independent breathing apparatus. Aladin® *PRIME* and Aladin® *TEC* are not designed for long term exposures with Nitrox.
- Always observe the visual and audible alarm signals. Avoid situations of increased risk which are marked with a warning sign in this operating manual.
- Aladin® *PRIME* and Aladin® *TEC* have a ppO₂ warning. The default limit is set at 1.4 bar ppO₂max. On Aladin® *TEC* it can be changed between 1.2 and 1.6 bar.
- Frequently check the "oxygen clock" (CNS O₂). Ascend and finish the dive if the CNS O₂ exceeds 75%.
- Never dive deeper than the Maximum Operating Depth (MOD) pertinent to the gas mixture in use.
- Always check the diving limits considering the oxygen content and standard sports diving procedures (decompression sickness, oxygen toxicity).
- In accordance with the recommended maximum diving limit of all instructional agencies, do not dive deeper than 40 metres/130 feet.
- The danger of nitrogen narcosis has to be taken into consideration. Aladin® *PRIME* and Aladin® *TEC* give no warning about this.
- On all dives with Aladin® *PRIME* or Aladin® *TEC*, make a safety stop for at least 3 minutes at 5 metres (15 ft).
- All divers using dive computers to plan dives and indicate or determine decompression status must use their own computer, which they take with them on all dives.
- If Aladin® *PRIME* or Aladin® *TEC* fail at any time during the dive, the dive must be terminated, and appropriate surfacing procedures (including a slow ascent and a 3 to 5 minute safety stop at 5 metres /15 ft) should be initiated immediately.
- Comply with the ascent rate and carry out any decompression stop required. If the computer should fail for any reason, you must ascend at a rate of 10m (30 feet) per minute or less.
- On any given dive, both divers in a buddy pair must follow the most conservative dive computer for that particular dive.
- Never dive without a buddy. Aladin® *PRIME* and Aladin® *TEC* do not substitute for a dive buddy.
- Only make dives that are appropriate to your level of dive training. Aladin® *PRIME* and Aladin® *TEC* do not increase your knowledge of diving.
- Always dive with back-up instruments. Make sure that you always use back-up instrumentation including a depth gauge, submersible pressure gauge, digital bottom timer or dive watch, and have access to decompression tables whenever diving with a dive computer.

- Avoid repeated ascents and descents (yo yo diving).
- Avoid repeated heavy workload while at depth.
- Plan the dives to be shorter if they are made in cold water.
- After finishing the decompression or at the end of a no-stop dive, the final stage of the ascent should be as slow as possible.
- You **MUST** be familiar with all signs and symptoms of decompression sickness before using Aladin® **PRIME** and Aladin® **TEC**! Seek **IMMEDIATE** treatment for decompression sickness should any of these signs or symptoms occur after a dive! There is a direct correlation between the effectiveness of treatment and the delay between the onset of symptoms and the treatment for decompression sickness.
- Only dive with Nitrox after you have been thoroughly instructed by a recognised institution.

Repetitive dives

- Do not start your next dive before your CNS O₂ % status has dropped below 40%.
- Diving with Nitrox: Make sure your surface interval is long enough (just like diving with compressed air). Plan for a minimum surface interval of two hours. Oxygen, too, needs sufficient time to leave the body.
- Match gas mixture to the intended dive.
- Do not attempt a repetitive dive if the microbubble warning  is visible on the display.
- Plan a day without diving once a week.
- If you have to change computers, wait at least 48 hours before carrying out your next dive.
- Diving after a reset of the remaining saturation (reset ->41 or battery replacement ->45) may lead you into potentially hazardous situations which could result in death or serious injury. After a reset of the remaining saturation do not dive for at least 48 hours.

Altitude and diving

- Do not dive at altitudes higher than 4000m (13000 feet).
- After a dive do not rise to altitudes that Aladin® **PRIME** or Aladin® **TEC** prohibits via the flashing altitude range number. (->27)



Flying after diving

- After diving, wait at least 24hours prior to flying.



Aladin® **PRIME** and Aladin® **TEC** dive instruments are a personal protective equipment in compliance with the essential safety requirements of the European Union directive 89/686/EEC. RINA SpA, Via Corsica 12, I-16128 Genoa, notified body no. 0474, have certified the conformity with the European Standard EN 13319:2000.

EN13319:2000 Diving accessories - Depth gauges and combined depth and time measuring devices - Functional and safety requirements, test methods. Any information on decompression obligation displayed by equipment covered by this standard is explicitly excluded from its scope.

Introduction

Congratulations on purchasing Aladin® **PRIME** or Aladin® **TEC** and welcome to UWATEC. From now on you will enjoy the assistance of the most extraordinary dive computer - equipped with UWATEC's most innovative technology - while diving.

This operating manual provides full information on the operation and functions of UWATEC Aladin® **PRIME** and Aladin® **TEC** dive computers. Additional information which is valid only for one of these dive computers has been specifically marked.

We thank you for choosing Aladin® **PRIME** or Aladin® **TEC** and we hope you will enjoy safe dives in the future! Further information on UWATEC dive computers and other products by UWATEC can be found on our web page at www.uwatec.com.

To make this manual easier to read we will use the term "Aladin®" as an abbreviation for "UWATEC Aladin® **PRIME** diving computer" and "UWATEC Aladin® **TEC** diving computer" throughout this booklet. Information which is valid only for Aladin® **TEC** is marked with "**TEC**".

Safety considerations

Dive computers provide divers with data; they however, do not provide the knowledge how this data should be understood and applied. Dive computers cannot replace common sense! You must therefore carefully read and understand this entire manual before using your Aladin®.

Important remarks concerning signal words and symbols

This operating manual makes use of the following icons to indicate especially important comments:

Remarks



Information and tips which are important for optimal use of the functions of Aladin®.

Danger!



Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.

The following symbols are used in the operating manual:



Flashing display

-> Page reference
e.g. ->10

TEC

Information valid only for Aladin® **TEC**

Audible signals

») 4 sec. ») Audible attention signal

»)»)»)») Audible alarm signal

Instructions for manual input



Press left push button



Press and hold (1 second)
left push button



Press right push
button



Press and hold
(1 second)
right push button



Press and hold (1 second)
both push buttons



Alternate displays

By pushing during the dive you can scroll through alternate displays.

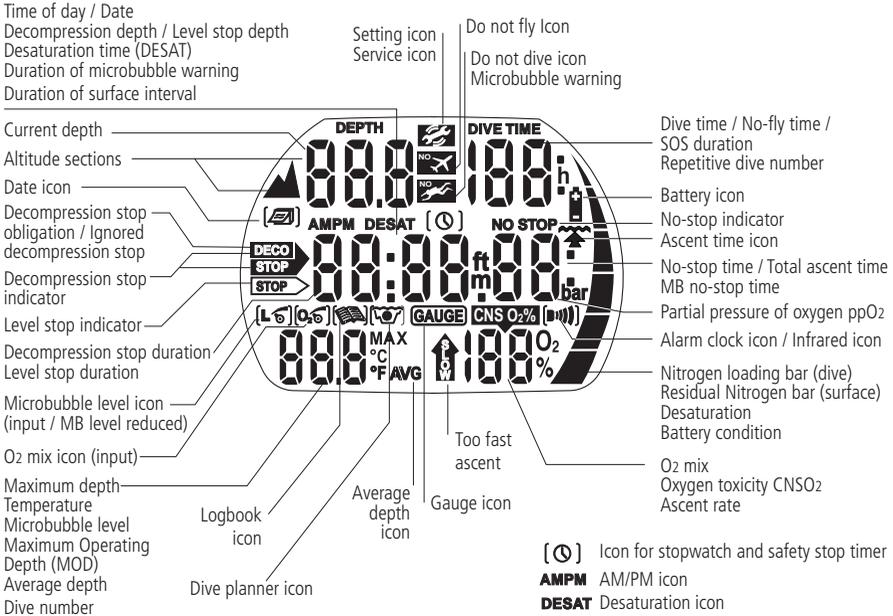
How to get back to the first display:

- scrolling with through the displays
- after 5 seconds: automatically if marked with
- after 5 seconds: directly by pushing 1x

E.g. Max. depth > Temperature > Temperature, Time > Maximum depth

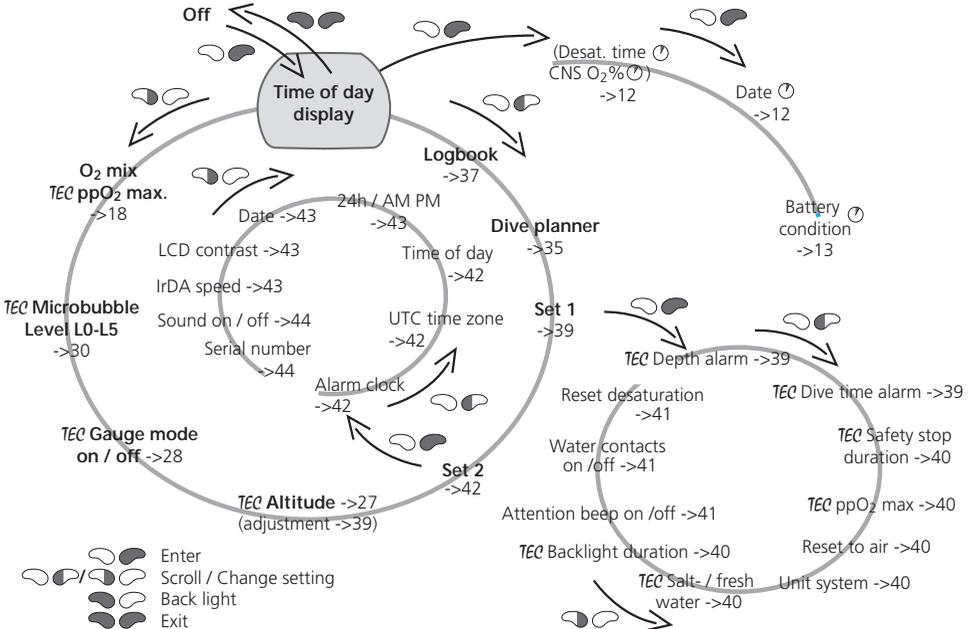


Time out after 5 seconds without operation. Display switches back to original indication.



Operating scheme

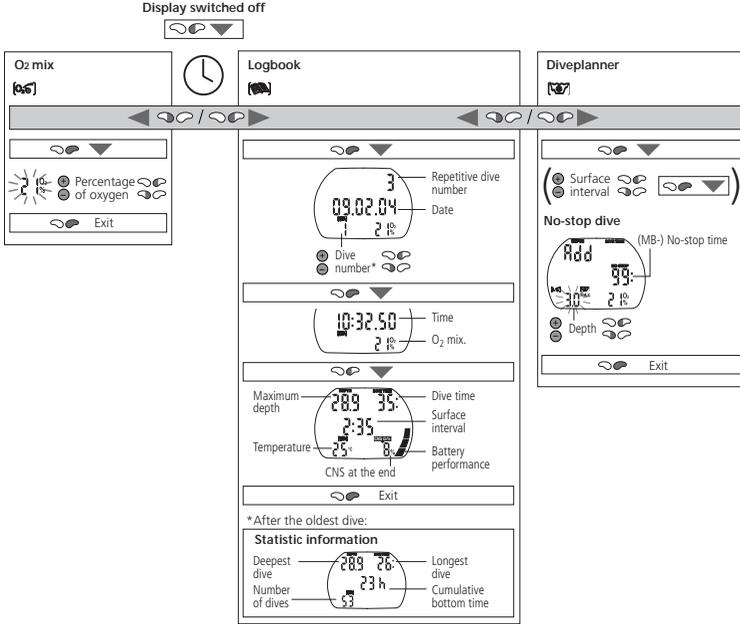
The menu points marked with "TEC" appear only on Aladin® TEC.
 "->" means "more information at page"



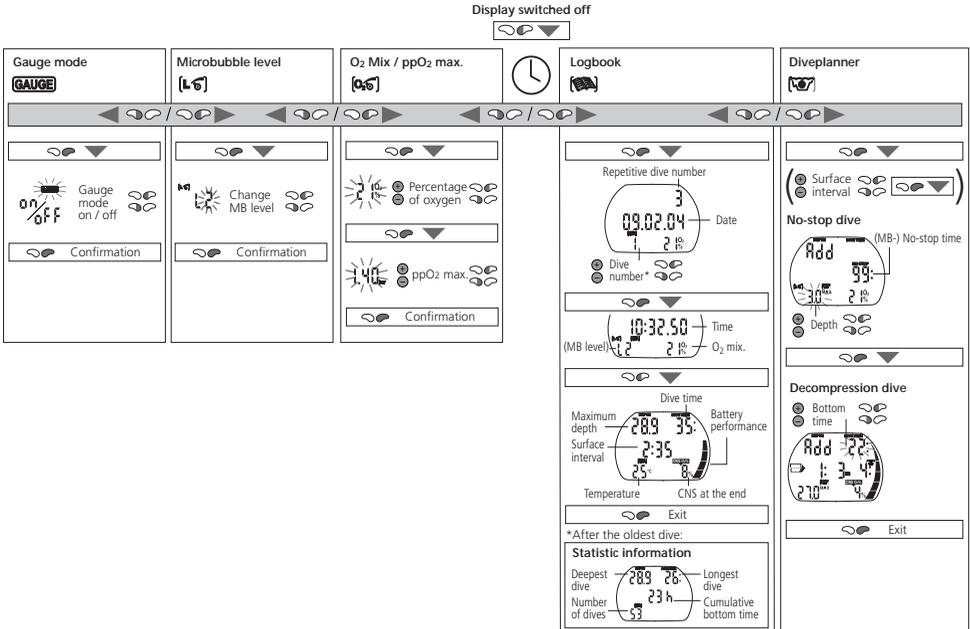
Without operation the display switches automatically back to the **time of day display** and after 3 minutes the display switches off.

See also page 11.

Aladin® PRIME



Aladin® TEC



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II System and operation

1 System description

Aladin® displays all important dive and decompression data.

Aladin® has a data memory which stores the dive data. The data can be transmitted with an infrared interface (IrDA) and the SmartTRAK software to a Windows® personal computer.

The SmartTRAK software CD is included with the Aladin® Package. Infrared interfaces are available in PC stores. A list of recommended interfaces is available on the UWATEC homepage (www.uwatec.com).



2 Operation



On page 5 and 11 you will find an operating schematic.

2.1 Push buttons



Aladin® can be operated with 2 push buttons (↶ ↷). Operation of the push buttons is divided into "press" (↶ / ↷) and "press and hold (1 second)" (⌚ / ⌚).

At the surface:

- ↶ ↷ / ⌚ ↷ • Switch on Aladin® (**time of day display**)
- ↶ ⌚ • Comparable to the ENTER or RETURN key of a keyboard
- ↶ ↷ • Enter into the displayed sub menu
- ↶ ⌚ • Open the displayed setting
- ↶ ↷ • Confirm or enter the displayed value or setting
- ↶ ↷ / ⌚ ↷ • Scroll through a menu
- ↶ ↷ / ⌚ ↷ • Once entered with ⌚ ↷ into a sub menu or setting:
 - Increase (↶ ↷) or decrease (↷ ↶) the indicated value
 - Change the setting
 - Switch on the backlight
 - Exit the current function or menu and switch to the **time of day display**
 - Switch off Aladin®

Under water:

- ↶ ↷ • Access alternate displays ⌚
- ↶ ↷ • TEC Set bookmark
- ↷ ↶ • Switch on the backlight
- ↶ ↷ • Activate the safety stop timer (dive mode only, in depths < 6.5 m / 20 ft)

TEC Gauge mode (stopwatch):

- ↶ ↷ • Start / Restart (while stopwatch is active)
- ↶ ↷ • Stop and exit stopwatch

2.2 Water contacts

On submerging in water the water contacts switch on Aladin® automatically.



If you have chosen the option "Water contacts off" ("set 1", ->41), Aladin® will turn on with a delay of up to 1 minute into the dive. This will affect functioning of the computer.
Make sure that the computer is on before starting the dive.

2.3 SmartTRAK

With SmartTRAK you can configure Aladin®, transfer dive data to a personal computer and graphically display the data.

If Aladin® detects an infrared device within range  appears.

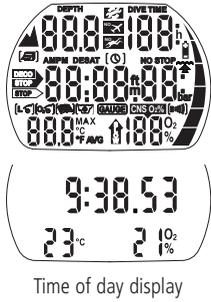
The following settings may be changed with SmartTRAK or via "set 1" or "set 2" directly on Aladin®:

Setting	Range	Default / Setting in Aladin® PRIME	Page
<ul style="list-style-type: none"> • TEC Depth alarm • TEC Dive time alarm • TEC Safety stop duration • TEC Maximum partial pressure of oxygen (ppO_{2 max}) • Time limit to reset the O₂% mix to air • Unit system • TEC Water type • TEC Backlight illumination duration • Audible attention signals • Water contacts • Reset desaturation 	5 - 100 m (20 - 330 feet) on/off 5-195 min., on/off 1-5 min. 1.2-1.6 bar no reset / 1 - 48 hrs. metric/imperial on (salt water)/off (fresh water)	40m (130ft),off 60 min., off 3 minutes 1.4 bar no reset on (salt water) 6 sec. on on no reset	->39 ->39 ->40 ->40 ->40 ->40 ->40 ->41 ->41 ->41 ->28
<ul style="list-style-type: none"> • TEC Gauge mode 	on / off	off	->28
<ul style="list-style-type: none"> • Alarm clock • UTC zone • Time of day • 24 or AM/PM setting • Date • LCD contrast • Sound 	0 - 23 h 59 min., on/off ±13 hrs., increments: 15 min. hours:minutes 24 (off) / AM/PM (on) 1 (low) -12 (high) on / off	12:00, off 0:00 GMT 1 (low) on	->42 ->42 ->42 ->43 ->43 ->43 ->44

The following data may be recalled with SmartTRAK:

- Number of past dives ✓
- Total length of dives ✓
- Deepest dive ✓
- Longest dive ✓
- Atmospheric pressure ✓
- Dive profile ✓
- Logbook ✓
- Temperature curve ✓
- Alarms and attention messages ✓
- TEC Bookmarks ✓
- TEC Average depth (only in gauge mode) ✓

2.4 Switching on the display



- automatically, on submerging in water* or when adaptation to atmospheric pressure is necessary;
- manually, by pushing or . If switched on with all segments light up for 5 seconds.

Afterwards the display shows the time of the day, the O₂ mix and the temperature.



This display is called **time of day display**. Most navigation descriptions start from this display. At the surface Aladin® returns automatically to this display.

If there is a remaining saturation from the last dive or from a change of altitude, Aladin® also displays the <do not fly> time, the <do not fly> icon, the current altitude range and the prohibited altitude range (->27).

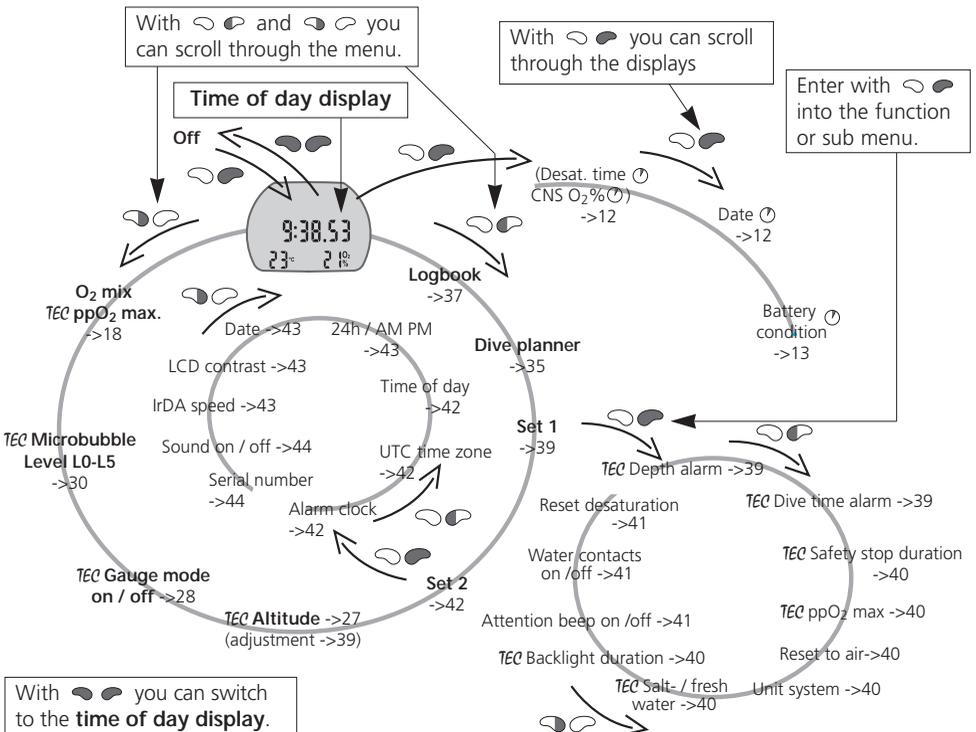


When Aladin® is in state of rest no information is displayed but the atmospheric pressure is continuously monitored. If a change in altitude range is detected, Aladin® switches on for 3 minutes automatically. ->27

* Only if the option "Water contacts on" ("set 1", ->41) is chosen. See warning -> 10.

2.5 How to navigate Aladin® at the surface

Starting from the **time of day display** you can enter into different menus.

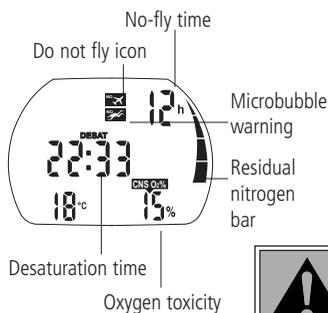


The menu points marked with "TEC" appear only on Aladin® TEC.

After 3 minutes without operation Aladin® returns to the **time of day display**.

2 Operation

2.6 Checking the desaturation time



From the **time of day display** you can check the desaturation time* by pushing . Desaturation time is determined either by oxygen toxicity, nitrogen saturation or the regression of microbubbles, depending on which requires the longer time.

The display switches back to the **time of day display** after 5 seconds without operation.

* Only displayed if there is a remaining saturation due to the last dive or change of altitude.



For the calculations of the desaturation and no-fly time it is assumed that the diver breathes air while on the surface.

2.7 Checking the surface interval



Surface interval

From the **time of day display** you can check the surface interval by pushing .

The surface interval is the time since the end of the last dive and is displayed as long as there is remaining saturation.

2.8 Displaying the date

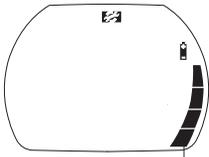


Date

From the **time of day display** you can display the date by pushing 1x or 2x (depending on whether there is desaturation time left).

The display switches back to the **time of day display** after 5 seconds without operation.

2.9 Checking the battery condition



Battery condition / performance

From the **time of day display** you can check the battery condition by pushing 2x or 3 x (depending on whether there is desaturation time left).

Aladin® displays the estimated remaining battery performance for 5 seconds as a bar graph. If the bar graph shows 3 segments the battery warning appears ->17 and the battery has to be replaced ->45.

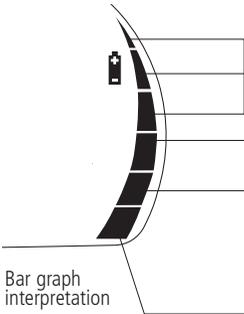


WARNING

- If the bar graph shows 2 segments, the battery symbol will blink, on the surface and in dive mode, to alert the diver of a dangerous situation: the battery may not have enough energy to finish a dive.
- Replace the battery when the steady battery symbol appears (3 segments)!



The temperature influences the battery performance. In cold water it is lower than in warm water. If the battery shows 4 segments on the surface, it is possible for it to drop to 3 segments during the dive. If this is the case, the backlight will be temporarily disabled. See below.



Bar graph interpretation

Battery performance high enough for diving.

Battery warning appears. Backlight deactivated. Replace the battery!



WARNING



Flashing battery warning. Audible alarms and attention messages disabled! Backlight deactivated! Risk of computer malfunction. Do not let the battery reach this condition! ->45

Diving not possible, dive planner and settings are disabled

Aladin® marks dives started with 3 or less segments in the logbook with the battery symbol.

Logbook information is not lost even when the battery is removed for a long time.

2.10 Active backlight



The display of Aladin® can be illuminated both on the surface and underwater.

The backlight can be activated by pushing . The light will turn off automatically. The default duration is 6 seconds. **TEC** The duration can be changed in "set 1" (->40) or with SmartTRAK between 2 and 12 seconds.

The backlight can only be activated if the computer display is on.



WARNING

The active backlight is no substitute for a dive torch. When diving at night or at increased depth we recommend the use of a dive torch.



Repeated activation of the backlight will reduce battery life.

2.11 Switching off the display

From the **time of day display** you can switch off Aladin® by pushing  .
On the surface Aladin® switches off automatically after 3 minutes without operation.

2.12 Alarm clock

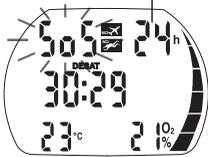
The alarm clock goes off only at the surface.
If the alarm clock is "on", the **time of day display** shows  .

When alarm is triggered:  flashes and special attention beeps are played for 30 seconds or until the user presses a button.

Setting the alarm clock: See page ->42 ("set 2")

3 SOS mode

Time remaining until
SOS mode switches
off automatically



Activation: automatic

If the diver remains above a depth of 0.8m (3 feet) for more than three minutes without observing a prescribed decompression, the computer will automatically switch into SOS mode after the dive.

While in SOS mode, the computer cannot be used for diving.

TEC: the computer can be used in gauge mode ->28. All segments in the nitrogen loading bar will flash throughout the dive.

The SOS mode will be unlocked after 24 hours.

Diving within 48 hours after the end of an SOS mode will result in shorter no stop times or longer decompression stops.

Push   to see the "SOS" sign and the remaining length of the SOS mode. The dive will be entered in the logbook with "SOS".



- Serious injury or death may result if a diver does not seek immediate treatment should any signs or symptoms of decompression sickness occur after a dive.

- Do not dive to treat symptoms of decompression sickness!
- Diving in SOS mode is extremely dangerous and you must assume full responsibility for such behaviour. UWATEC will assume no liability.

A diving accident can be analyzed at any time in the logbook and downloaded to a PC by means of the infrared interface (IrDA) and the SmartTRAK software.

1.3 Nitrox information (O₂ information)

For dives with compressed air in normal recreational diving, nitrogen is the decisive gas for the decompression calculations. When diving with Nitrox, the risk of oxygen toxicity rises with the increase of the fraction of oxygen and the increase of depth and can limit dive time and the maximum depth. Aladin® includes this in the calculations and displays the necessary information:

<O₂% MIX>

Fraction of oxygen: The fraction of oxygen in the Nitrox mixture can be set between 21% (normal compressed air) and 50% (TEC:100%) in 1% increments. Your selected mix will be the basis for all calculations.

ppO₂ max.

Maximum allowed partial pressure of oxygen: the higher the fraction of oxygen in the mixture, the shallower the dive depth at which this value of the partial pressure of oxygen is reached. The depth at which ppO₂ max. is reached is called Maximum Operating Depth (MOD).

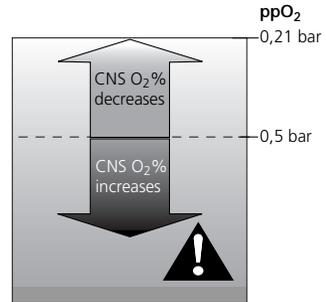
When you enter the settings for the gas mixture, Aladin® will display the ppO₂ max. limit setting and the corresponding MOD. Aladin® warns the diver audibly and visually once the depth is reached at which the ppO₂ reaches the maximum allowed value ->23.



- Default setting of ppO₂ max. is 1.4 bar.
TEC The value of ppO₂ max. can be set by means of SmartTRAK or with "set 1" between 1.2 and 1.6 bar (->40). It can also be reduced at the time of setting the gas mixture (->18).
- The CNS O₂% value/alarm is not influenced by the selected ppO₂max. setting.

<CNS O₂>

Oxygen toxicity: With the increased percentage of oxygen, the oxygen in the tissues (especially in the central nervous system (CNS)) becomes important. If the partial pressure of oxygen rises above 0.5 bar, the CNS O₂ value increases, if the partial pressure of oxygen is below 0.5 bar, the CNS O₂ value decreases. The closer the CNS O₂ value is to 100%, the closer the limit where symptoms can occur. See page 23.



WARNING

Nitrox diving may only be attempted by experienced divers after proper training from an internationally recognized agency.

Aladin® draws the diver's attention to certain situations and warns the diver of unsafe diving practices. Attention messages and alarms are visual and / or audible.



- The audible attention messages can be switched off in "set 1" ->41 or Smart-TRAK. With SmartTRAK they can be switched off selectively.
- In addition, the sound can be turned off completely in "set 2" ->44.



If you turn off the sound you will have no audible warnings. Without audible warnings you could inadvertently get into potentially hazardous situations which could result in death or serious injury.



Serious injury or death may result from failing to immediately respond to alarms given by Aladin®.

2.1 Attention messages

Attention messages are communicated to the diver visually by symbols, letters or flashing figures. In addition, two short audible sequences can be heard (in an interval of 4 seconds) in two different frequencies under water.

«)) 4 sec «)) (can be switched off)

«))«)) «))«)) «))«)) «))«))

Attention messages come up in the following situations (more information can be found on the listed pages):

	Page
• Maximum Operating Depth / max. ppO ₂ is reached	23
• TEC Set maximum depth is reached	21
• Oxygen toxicity reaches 75%	23
• No-stop time less than 3 minutes	24
• Prohibited altitude (surface mode)	27
• Entering decompression (when diving with L0)	24
• TEC Half of set dive time is reached	20
• TEC Set dive time is reached	20
TEC Diving with microbubble levels (L1-L5):	
• MB no-stop time = 0	32
• MB level stop ignored	33
• MB level reduced	33
• Entering decompression when diving with MB level L1-L5	33

2.2 Alarms

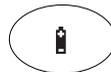
Alarms are given to the diver visually by flashing symbols, letters or figures. In addition, an audible sequence in one frequency can be heard during the whole duration of the alarm.

An alarm occurs in the following situations: (More information can be found on the listed pages.)

	Page
• Oxygen toxicity reaches 100%	23
• Ignored decompression	25
• Exceeding the prescribed ascent rate (Particular scale of beeps, ->22)	22
• TEC Altitude alarm	27
• Low battery alarm*	see below

Low battery alarm

The battery icon appears if the battery has to be replaced ->45.



*without audible alarm

3 Preparation for the dive

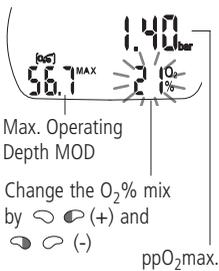
You have to check the settings of Aladin® especially before the first dive. All settings can be checked and changed directly at Aladin® or via SmartTRAK. Chapter 3 describes the most common settings. On the next page you will find an overview with all possible Aladin® settings and page references.

3.1 Setting the gas mixture and *TEC* ppO₂ max [0.6]



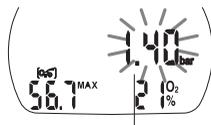
Before every dive and after changing the tank, make sure that the settings for the gas mixture correspond with the current mixture used. An incorrect setting causes Aladin® to miscalculate this particular dive. If the fraction of oxygen is set too low this can lead to oxygen poisoning without warning. If the value is set too high decompression sickness may occur. Inaccuracies in the calculations are carried over to repetitive dives.

or until [0.6]



To set the gas mixture, Aladin® must be in user mode (**time of day display**).

1. Push or until the symbol for the setting of the O₂ mixture appears.
2. Confirm that you wish to change the displayed oxygen fraction by pushing .
3. Change the oxygen fraction in increments of 1% by pushing or . Aladin® will display the current fraction of oxygen, the maximum partial pressure limit* (ppO₂ max) and the MOD.
*TEC As pre-set by means of the SmartTRAK or "set 1".
4. Confirm the selected percentage with .



5. *TEC* By pushing or you can change the ppO₂ max for the chosen fraction of oxygen **down to 1.0bar**. Aladin® will now display the corresponding MOD for the new ppO₂ max.
6. *TEC* Confirm your ppO₂ max settings with .



- Without confirmation the display will disappear after 3 minutes and your entries will not be accepted.
- The time to reset the O₂ % mix to air can be set with "set 1" ->40 or SmartTRAK between 1 and 48 hours or to "no reset" (default).

3.2 [L.6] *TEC* Setting the MB level See chapter V, ->32

3.3 Preparation for the dive and function check



Switch on Aladin® by pushing ** and check the test display: Are all elements of the display activated? Do not use Aladin® if the display does not show all elements.

** Switching on Aladin® with test display will not appear.



Check the battery capacity before each dive ->13.

3.4 Overview Aladin® settings

Configure Aladin® according to your needs.

Setting	Range	Default / Setting in Aladin® PRIME	Page
<ul style="list-style-type: none"> • Setting the gas mixture and <i>TEC</i> MOD • <i>TEC</i> Setting the MB level • <i>TEC</i> Gauge mode • <i>TEC</i> Altimeter 	21-50% O ₂ , <i>TEC</i> 21-100% O ₂ L0-L5 on / off	21% O ₂ L0 off	->18 ->32 ->28 ->39
The following settings may be changed with "set 1" (->39) or SmartTRAK:			
<ul style="list-style-type: none"> • <i>TEC</i> Depth alarm • <i>TEC</i> Dive time alarm • <i>TEC</i> Safety stop duration • <i>TEC</i> Maximum partial pressure of oxygen (ppO_{2 max}) • Time limit to reset the O₂% mix to air • Unit system • <i>TEC</i> Water type • <i>TEC</i> Backlight illumination duration • Audible attention signals • Audible attention signals • Water contacts • Reset desaturation 	5 - 100 m (20 - 330 feet) on/off 5-195 min., on/off 1-5 min. 1.2-1.6 bar no reset / 1 - 48 hrs. metric/imperial on (salt water)/off (fresh water) 2-12 sec. on / off SmartTRAK: selective on / off on / off	40m (130ft), off 60 min., off 3 minutes 1.4 bar no reset on (salt water) 6 sec. on on on no reset	->39 ->39 ->40 ->40 ->40 ->40 ->40 ->41 ->41 ->41 ->41
The following settings may be changed with "set 2" (->42) or SmartTRAK:			
<ul style="list-style-type: none"> • Alarm clock • UTC zone • Time of day • 24 or AM/PM setting • Date • LCD contrast • IrDA speed (not possible with SmartTRAK) • Sound • Show Aladin® serial number 	0 - 23 h 59 min., on/off ±13 hrs., increments: 15 min. hours:minutes 24 (off) / AM/PM (on) 1 (low) -12 (high) low / high on / off	12:00, off 0:00 GMT 1 (low) high on	->42 ->42 ->42 ->43 ->43 ->43 ->43 ->44 ->44

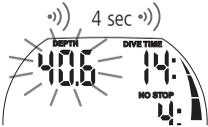
4.5 Maximum depth / Temperature



Maximum depth is only displayed if it exceeds the current depth by more than 1 m (3 feet) (maximum indicator function). If maximum depth is not displayed, Aladin® shows the temperature.

Maximum depth
CNS O₂%

- ☉ ☽ ☾ > Temp., O₂ ☽
- ☽ ☾ ☽ > Temp. ☽, Time ☽, O₂ ☽
- ☽ ☾ ☽ > Max. depth



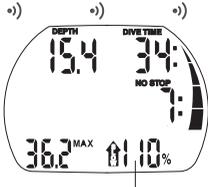
WARNING

TEC Set maximum depth reached

If the maximum depth set with SmartTRAK or "set 1" has been reached (default 40m/130 feet) and the depth alarm is turned on, the depth display will flash.

Ascend until the depth stops flashing.

4.6 Ascent rate



Ascent rate

Optimal ascent rate varies depending on depth between 7 and 20 m/min (23 and 67 ft/min). It is displayed as a percent of the reference variable ascent rate. If the ascent rate is greater than 100% of the set value, the black arrow <SLOW> appears. If the ascent rate exceeds 140%, the arrow starts flashing. Aladin® provides an audible alarm if the ascent rate is 110% or greater. The intensity of the alarm increases in direct proportion to the degree that the prescribed ascent rate is exceeded.



The prescribed ascent rate must be observed at all times! Exceeding the prescribed ascent rate can lead to microbubbles in the arterial circulation which can lead to serious injury or death due to decompression sickness.

- In case of an improper ascent Aladin® may require a decompression stop even within the no-stop phase because of the danger of microbubble formation.
- The decompression duration necessary for the prevention of microbubbles can increase massively if the ascent rate is exceeded.
- From great depth a slow ascent may cause heightened saturation of tissues and an extension of both decompression duration and total ascent time. At shallow depth, a slow ascent may shorten the decompression duration.
- Display of the ascent rate has the priority over <CNS O₂>.



Ascent rate	Visual alarm	Audible alarm			
110%		••)	••)	••)	••)
140%		••))	••))	••))	••))
160%		••)))	••)))	••)))	••)))
180%		••))))	••))))	••))))	••))))

Excessive ascent rates for longer periods are entered in the logbook.

4.7 Partial pressure of oxygen (ppO_{2 max}) / Maximum Operating Depth (MOD)



Max. Operating Depth MOD

- ☐
- ☉ ☾ >Temp. ☉, O₂ ☉
- ☉ ☾ >Temp. ☉, Time ☉
- ☉ ☾ >MOD



WARNING

The MOD is a function of ppO_{2 max} and the mixture used. If during the dive the MOD is reached or passed Aladin® sends an audible attention message and the MOD is displayed (flashing) in the lower left corner.

Ascend to a depth shallower than the displayed MOD in order to diminish the danger of oxygen poisoning.

The maximum partial pressure of oxygen ppO_{2 max} (default 1.4 bar) determines the Maximum Operating Depth (MOD). Diving deeper than the MOD will expose the diver to oxygen partial pressures higher than the set maximum level.

TEC The ppO_{2 max} and consequently the MOD can be reduced manually (->18, setting the gas mixture, point 5).

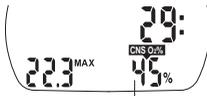
TEC In addition the maximum allowed ppO₂ can be set by means of SmartTRAK or with "set 1" between 1.2 to 1.6 bar ->40.



WARNING

The MOD should not be exceeded. Disregarding the warning can lead to oxygen poisoning.

4.8 Oxygen toxicity (CNS O₂%)



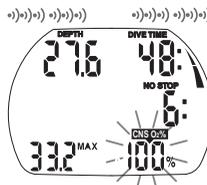
Oxygen toxicity

- ☐
- ☉ ☾ >Temp., O₂ ☉
- ☉ ☾ >Temp. ☉, Time ☉, O₂ ☉



WARNING

An audible attention signal goes off if oxygen toxicity reaches 75%. The symbol <CNS O₂> flashes. Ascend to shallower depth to decrease oxygen loading and consider terminating the dive.



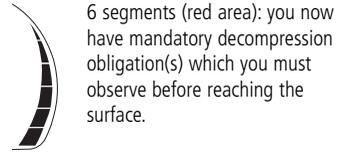
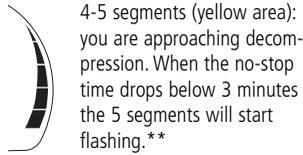
WARNING

When oxygen toxicity reaches 100%, an audible alarm goes off every 4 seconds. <CNS O₂> and the percentage value flash. Danger of oxygen toxicity! Start procedure for terminating the dive.

- During an ascent and if the CNS O₂ % value does not increase anymore (due to a lower partial pressure of oxygen), the audible warning is suppressed.
- During the ascent, the display of the oxygen toxicity is replaced by the ascent rate. If the ascent is stopped, the display changes back to the indication of the CNS value.
- Aladin® will display CNS O₂ % values exceeding 199 % with 199 %.

4.9 Nitrogen loading bar graph

The nitrogen loading bar gives a graphical representation of how close to decompression you are. As you absorb nitrogen during the dive, more and more segments of the bar will light up. Depending on your depth, the segments can light up more or less rapidly.



** Depending on your profile, the no-stop time may drop below 3 minutes before the upper 5 segments are lit. In this case, only those segments that are lit will flash.

If you have entered decompression, the 6th segment will turn off as soon as you complete your last decompression obligation to indicate that you are no longer in decompression.

4.10 Decompression information

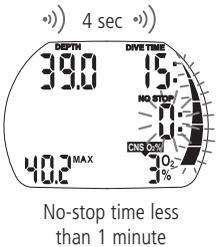
NO STOP and the no-stop time (minutes) are displayed if no decompression stops are necessary.



- No-stop display <99:> means remaining time of 99 minutes or more.
- No-stop time is calculated on line and influenced by the current water temperature



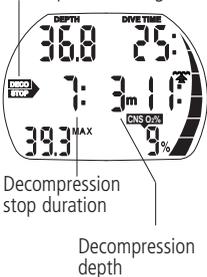
If no-stop time drops below 3 minutes, an audible attention signal is activated, the no-stop value and the nitrogen loading bar begin to flash. If no-stop time is less than 1 minute, the no-stop display shows the flashing value "0". In order to prevent a decompression dive, ascend slowly until the no-stop time is 5 minutes or more.



Dives that require decompression stops are not recommended.

Decompression values

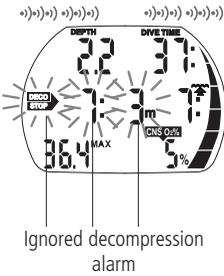
Decompression obligation



On entering the decompression phase, "NO STOP" disappears, the symbol appears and an attention beep goes off. The nitrogen loading bar stops flashing and the 6th segment lights up (red area). The deepest decompression stage in metres (feet) is displayed and the decompression stop duration of the displayed stage appears in minutes. The display <7: 3m (10ft)> means that a decompression stop of 7 minutes at a depth of 3m (10ft) has to be made.

When a decompression stop has been finished, the next higher decompression stop is displayed. When all decompression stops have been made, the symbol extinguishes, "NO STOP" and no-stop time reappear.

Deco stop depths deeper than 27m (90 ft) are displayed as <-- : -->



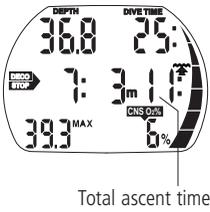
The decompression alarm is activated if the decompression stop is ignored. The arrow , the decompression stop duration and decompression stop depth begin to flash and an audible alarm goes off.

Due to the formation of microbubbles decompression can increase massively if a decompression stop is ignored. When the surface is reached during the decompression alarm, the arrow , the decompression stop duration and decompression stop depth continue flashing, in order to point to the risk of a decompression accident. The SOS mode is activated 3 minutes after the dive if corrective action is not taken (->14).

If the total (cumulative) duration of the decompression alarm is longer than a minute, it is entered in the logbook.

Descend to the prescribed decompression stop depth immediately!

Total time of ascent



As soon as decompression stops are necessary Aladin® shows the total time of ascent. This includes the ascent time from the current depth to the surface and all decompression stop obligations.



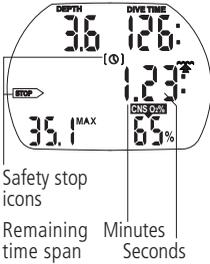
The total time of ascent is calculated on the basis of the prescribed ascent rate. Total time of ascent can be subject to change if the ascent rate is not ideal (100%).

Ascent time greater than 99 minutes is displayed as <- ->.



On all dives with Aladin®, make a safety stop for at least three minutes at a depth of 5 m (15 feet).

4.11 Safety stop timer



The safety stop timer displays the time span a diver should spend at the safety stop depth at the end of the dive. The timer is activated by the diver and counts back from 3 minutes (default) to zero. It can be restarted any number of times. *TEC* The duration of the timer can be set between 1 and 5 minutes.

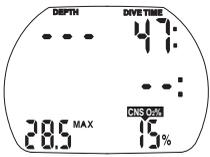
The safety stop timer can be activated under the following conditions: Depth < 6.5 m (21 ft), no-stop display 99 min., gauge mode is switched off.

Activate the safety stop timer by pressing . The timer begins to count backwards and a bookmark will be created in the dive profile. If you press again, the timer will start again from the full value.

The safety stop timer will switch off automatically if the depth exceeds 6.5 m (21 ft) or the no-stop phase is shorter than 99 minutes.

5 Functions at the surface

5.1 End of a dive



After reaching the surface (<0.8 m/3 ft) Aladin® remains in dive mode for 5 minutes. The delay allows for surfacing for a short period for orientation.

After 5 minutes the dive is closed and it is entered into the logbook. The time of day is then displayed for 3 minutes, after which the computer turns off.



For the calculations of the desaturation and no-fly time it is assumed that the diver breathes air while on the surface.

5.2 Residual nitrogen bar graph

The segments in the residual nitrogen bar graph will gradually turn off as Aladin® follows the offgassing of your tissues during your surface interval. There is a 1:1 equivalence in the meaning of the segments between diving and surface. Thus, on a repetitive dive the bar will resume from its status on the surface just prior to the dive. There are two exceptions however:

- the uppermost segment will stay lit until the desaturation time is completely extinguished. This is done to show that there is desaturation time left and that a dive started at this point will be logged as a repetitive dive. If the remaining desaturation time is very short, this segment could however at first disappear during the dive;
- during the 24 hours of an SOS-lock, all segments will stay on.

5.3 Desaturation time, No-fly time and Microbubble warning



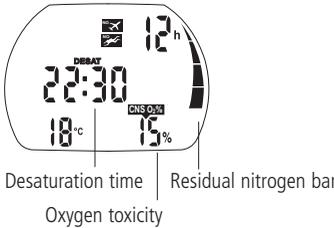
5 minutes after a dive Aladin® shows the time of day, the <do not fly time>, the microbubble warning (if applicable), the current altitude range and the prohibited altitude range (->27).

No-fly time is the time in hours that should pass before a flight and is displayed and adjusted until the value becomes 0 hours.

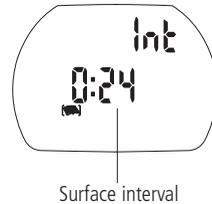
	WARNING	Flying while Aladin® displays <do not fly> may lead to serious injury or death from decompression sickness.
	WARNING	If the <microbubble warning (NO DIVE)> is visible during the surface interval, the diver should not undertake another dive.

The **duration of the microbubble warning** is visible by entering the dive planner ->35.

To check the remaining **desaturation time** and oxygen toxicity press .



To check the **elapsed surface interval** press .



Desaturation time is determined either by oxygen toxicity, nitrogen saturation or the regression of microbubbles, depending on which requires the longer time.



Microbubble warning

Through repetitive dives microbubbles accumulate in the lungs if the surface interval is not long enough. Ignoring decompression stops or ascending at an excessive rate can also lead to microbubbles in tissues. In order to reduce the risk of decompression sickness for repetitive dives, the surface interval should be planned long enough. If Aladin® calculates that the formation of microbubbles occurs during the surface interval, it will advise a diver to extend the surface interval via the microbubble warning.



If the dive is made in spite of the microbubble warning, the diver must cope with a clearly shorter no-stop time or an extension of decompression. Also, the duration of the microbubble warning at the end of the dive can increase considerably.

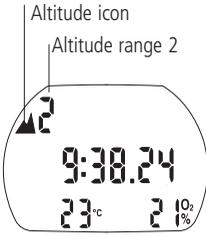
6 Diving in mountain lakes



6.1 Altimeter

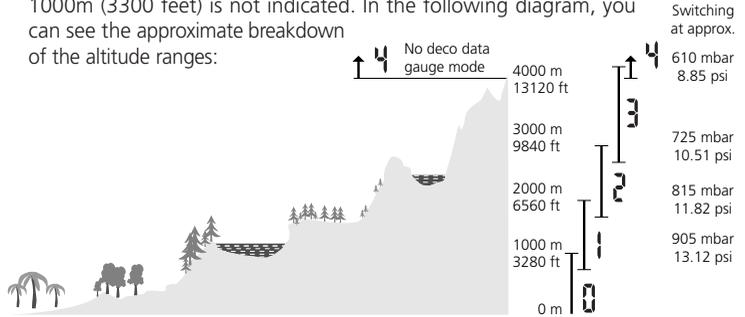
The altitude adjustment ->39 does not affect altitude ranges nor any calculations.

6.2 Altitude ranges



Aladin® measures the atmospheric pressure every 60 seconds even while the display is switched off. If the computer detects a sufficient increase in altitude, it switches on automatically and indicates the new altitude range (1-4) and the desaturation time. Desaturation time indicated at this moment refers to adaptation time at this altitude. If the dive starts within this adaptation time, Aladin® treats it as a repetitive dive, since the body is offgassing.

Altitude is divided into five ranges, which are influenced by barometric pressure. That is why the defined altitude ranges overlap on their fringes. If a mountain lake is reached, the altitude range is indicated at the surface (**time of day display**), in the logbook and in the dive planner by a stylised mountain and the current altitude range. Sea level to an altitude of approximately 1000m (3300 feet) is not indicated. In the following diagram, you can see the approximate breakdown of the altitude ranges:



6.3 Prohibited altitude



Ascent to altitude range 3 and 4 prohibited.
Max. allowed altitude:
2650 m (8694 ft).



Aladin® shows via flashing altitude segments while at the surface to which altitude the diver may not rise.



Max. altitude:

850 m
2790 ft



1650 m

5413 ft



2650 m

8694 ft



4000 m

13120 ft

The ascent prohibition can also be displayed together with an altitude range:



Example: You are at 1200 m (3937 ft) (altitude range 1) and you may ascend to range 2 only (2650 m / 8694 feet). You may not rise to the altitude range 3 or 4.



TEC If an ascent to a prohibited altitude is detected, an audible alarm goes off for 1 minute (patent pending).
Descend to a lower altitude.

6.4 Decompression dives in mountain lakes



In order to assure optimal decompression even at higher altitudes, the 3m (10 ft) decompression stage is divided into a 4 m (13 ft) stage and a 2 m (7 ft) stage in altitude ranges 1, 2 and 3. The prescribed decompression stop depths are, in sequence, 2m / 4m / 6m / 9m... (7 ft / 13 ft / 20 ft / 30 ft...).

If atmospheric pressure is below 620 mbar (8.99 psi) (altitude higher than 4100 m / 13450 ft above sea level), no decompression data is calculated and displayed (automatic gauge mode).

In addition, the dive planner is not available anymore.

Dive at altitude range 4:

- no deco data (autom. gauge mode)

IV TEC Gauge mode



In gauge mode **ALL** audible and visual alarms and attention messages are turned off.

In gauge mode Aladin® **TEC** will display depth, dive time and maximum depth. By pressing you can scroll from the maximum depth to the temperature, to the average depth, to the time of day and temperature and back to the maximum depth. You can also activate the stopwatch. Gauge mode does not support the calculation of no-stop time or the supervision of decompression. Supervision of ppO₂ max and CNS O₂ % will also be switched off. Aladin® **TEC** will display no information about microbubble development. Bookmarks can be set (). The settings for the gas mixture, MOD and microbubble level cannot be set and the dive planner cannot be selected.

Switching the gauge mode on and off

Gauge mode can be switched on and off at the surface, when there is no desaturation and no dive in gauge mode has been made in the last 48 hours.

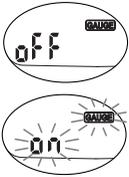


- Dives in gauge mode are performed at your own risk!
- After diving in gauge mode you must wait for at least 48 hours before using a decompression computer.

After diving in gauge mode, Aladin® **TEC** can not be used as dive computer for 48 hours.

Procedure:

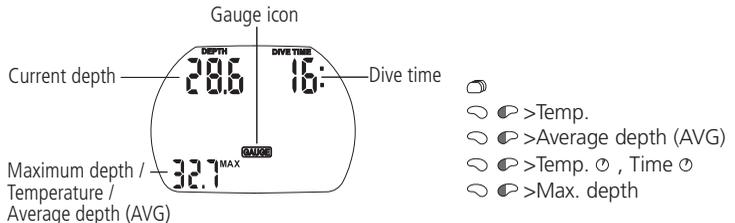
1. From the **time of day display** push or until the gauge symbol and "on" or "off" are displayed.
(If Aladin® **TEC** shows the gauge mode cannot be switched "on" or "off". Aladin® **TEC** shows for 48 hours after a dive in gauge mode and as long as there is remaining desaturation after a dive in computer mode.)
2. Confirm with that you wish to activate or deactivate the gauge mode. The "on" or "off" starts flashing.
3. By pushing or the gauge mode is switched on or off.
4. Confirm your settings with .



Without confirmation the display will disappear after 3 minutes and your entries will not be accepted.

Diving in gauge mode

The following information is displayed in gauge mode:



The **average depth** is continuously updated and represents the time averaged depth since the beginning of the dive (patent pending).

Stopwatch



In gauge mode, after immersion, Aladin® TEC will automatically monitor the dive time and at the same time activate the stopwatch. The stopwatch will run for a maximum of 24 hours.

- ☞ ☞ Resets time and starts stopwatch from zero*
- 1. ☞ ☞ Halts stopwatch
- 2. ☞ ☞ Exits stopwatch (☞ ☞ Restarts stopwatch*)

* Each start (restart) of the stopwatch creates a bookmark.

After diving in gauge mode



Remaining time during which Aladin® cannot be used in computer mode

Aladin® TEC shows the remaining time span during which it cannot be used in computer mode. Once the waiting period is over, the gauge mode can be switched off manually. ->28

The no-fly time after diving in gauge mode is 48 hours.

Desaturation time will not be displayed.

V TEC Diving with microbubble levels (MB)



The following chapter deals with the characteristics of diving with microbubble levels (MB level). For general information about displays and features of diving with Aladin® TEC see chapter III.

Microbubbles are tiny bubbles that can build up inside a diver's body during any dive and normally dissipate naturally during an ascent and on the surface after a dive. Dives within no-stop time and observation of decompression stops do not prevent the formation of microbubbles in the venous blood circulation.

Dangerous microbubbles are those migrating into the arterial circulation. The reasons for the migration from the venous blood circulation to the arterial circulation can be a great many microbubbles collecting in the lungs. UWATEC has equipped Aladin® dive computers with a new technology to protect from microbubbles.

The diver chooses – according to his/her needs – an MB level and influences through it the level of protection from microbubble formation. Diving with MB levels requires additional ascent stops (level stops), the ascent is slowed down and the body gets more time to desaturate. This works contrary to the formation of the microbubbles and increases the safety.

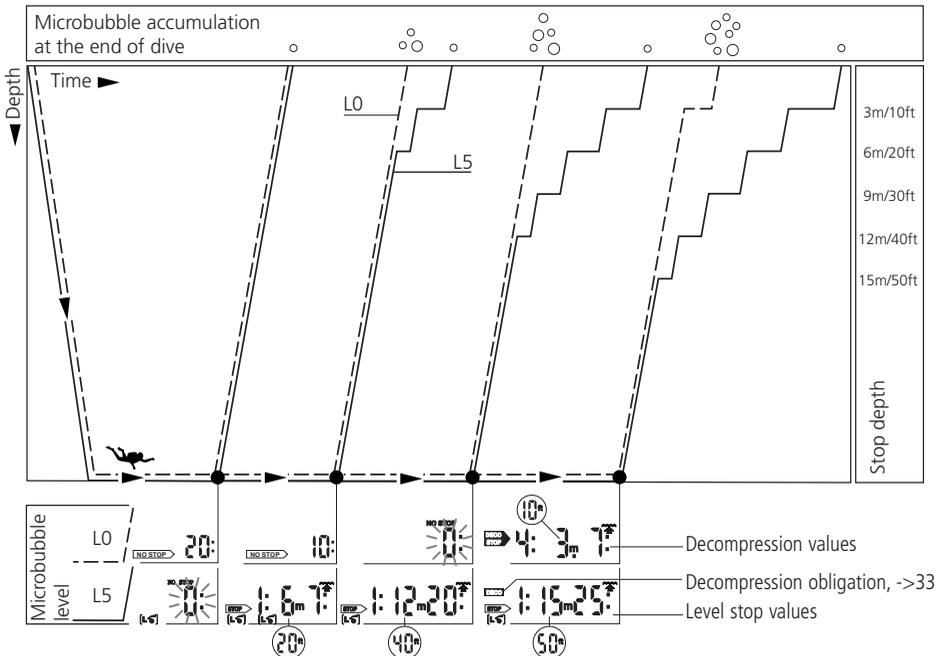
Aladin® TEC features **6 microbubble levels** (L0-L5). Level L0 corresponds to UWATEC's well-known decompression model ZH-L8 ADT and does not require level stops due to microbubble formation. Levels L1 to L5 offer additional protection from microbubble formation with level L5 offering the highest protection.

Similar to the display of information during decompression dives or dives within no-stop time, Aladin® TEC displays depth and duration of the first level stop as well as the total time of ascent as soon as the MB no-stop time has run out. As the MB no-stop time is shorter than the ordinary no-stop time a diver will be required to carry out a stop (level stop) sooner than a diver using level L0.

If a diver ignores a required level stop, Aladin® TEC will change over to a lower MB level and the dive can not be completed with the initially chosen MB level. E.g. If a diver sets level L4 on Aladin® TEC prior to the dive and during the dive ignores the stops recommended Aladin® TEC will automatically adjust the setting to level L3 or lower.

1 Comparison of dives with MB level L0 and MB level L5

When two Aladin® TEC are used simultaneously, one unit is set for example to MB level L5, the other to L0, the no-stop time will be shortened and level stops will be required before the diver has the obligation of a decompression stop. These additional level stops help dissipate the microbubbles.



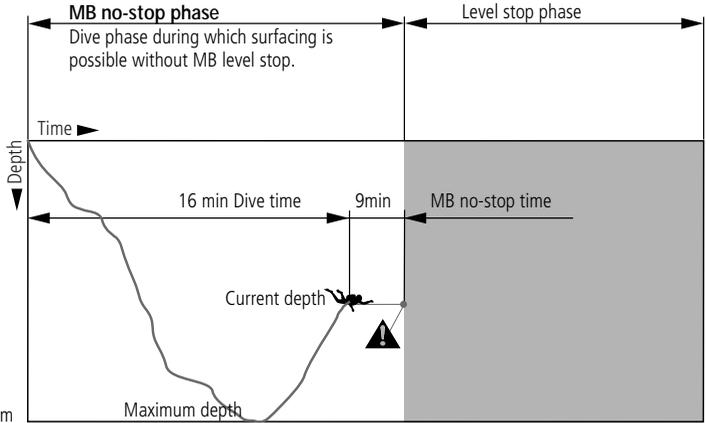
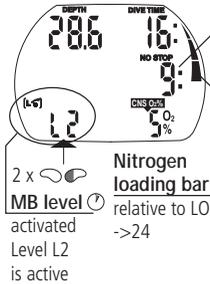
2 Terminology

This chapter will exclusively deal with terminology and display features used while diving with MB levels. All other features are described in chapter III (->15).

2.1 Display during microbubble (MB) no-stop phase

MB no-stop time

Remaining time at a respective depth allowing ascent without level stop.



- ☉ (Max. depth ☉ ☉ >) Temperature
- ☉ ☉ > MB level active ☉
- ☉ ☉ > No-stop time relative to LO ☉
- ☉ ☉ > Temperature ☉ and time of day ☉
- ☉ ☉ > (Max. depth)...

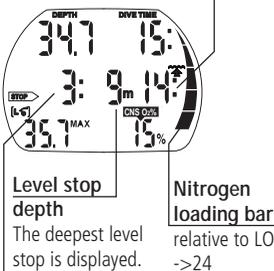


Whereas the *quantitative* information relative to LO can be seen by pressing the right button, *qualitative* information is always visible on the display in form of the nitrogen loading bar. In particular, when the LO no-stop time is less than three minutes, the nitrogen bar will flash ->24. This will help you avoid entering inadvertently into decompression.

2.2 Display during level stop phase

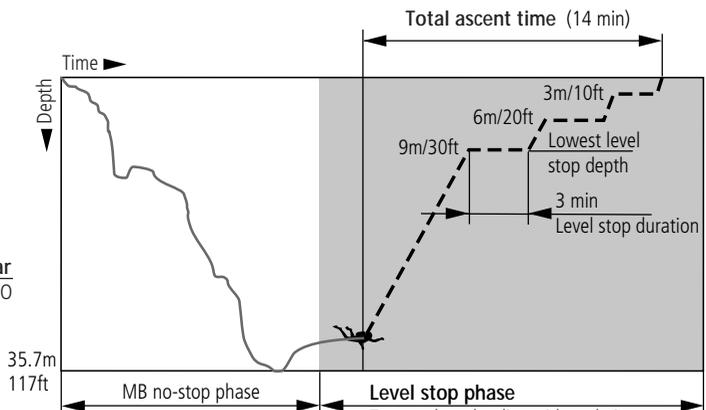
Total ascent time

including level stops



Level stop duration

The duration of a level stop at a given level stop depth is displayed.



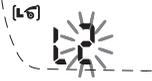
- ☉ (Max. depth ☉ ☉ >) Temperature
- ☉ ☉ > MB level active ☉
- ☉ ☉ > No-stop time or deco information relative to LO ☉
- ☉ ☉ > Temperature ☉ and time of day ☉
- ☉ ☉ > (Max. depth)...

To complete the dive without being reduced to a lower MB level all requested level stops must be observed.

3 Preparation for a dive with microbubble levels (MB levels)

3.1 Setting the MB level

☉ ☉ or ☉ ☉
until [L5]



To change the MB level Aladin® TEC must be in user mode (**time of day display**).

1. Push ☉ ☉ or ☉ ☉ until the symbol for MB levels [L5] appears.
2. Confirm that you wish to change the displayed MB level by pushing ☉ ☉.
3. Change MB level by pushing ☉ ☉ or ☉ ☉.
4. Confirm the selected MB level with ☉ ☉.

Without confirmation the display will disappear after 3 minutes and your entries will not be accepted.

Aladin® TEC will display the [L5] symbol to confirm that an MB level beyond L0 (L1-L5) has been chosen. During the dive the MB level is shown by pressing 2x ☉ ☉. If however a level stop is ignored, the new MB level is shown (->33).



MB levels have an influence on the dive planner.

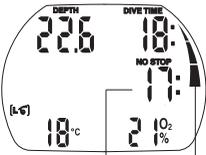
4 Functions during the dive with microbubble levels

4.1 Level stop information

Microbubble (MB) no-stop time

While diving with MB levels L1 to L5 Aladin® TEC will display the MB no-stop time instead of the ordinary no-stop time. Within the MB no-stop time no level stops are required.

"NO STOP" and the MB level symbol [L5] are visible. The remaining MB no-stop time is shown in minutes.



- Information and alarms for MB no-stop time and ordinary no-stop time are the same (->24).
- No-stop time relative to L0 is shown by pressing 3x ☉ ☉ (see ☉)
- Regardless of the MB level, we generally recommend to perform a slow ascent during the last few metres / feet.

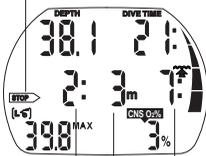
MB no-stop time

Nitrogen loading bar
relative to L0

- ☉ (Max. depth ☉ ☉ >) Temperature ☉ ☉ > MB level active ☉ ☉ > No-stop time relative to L0 ☉ ☉ > Temperature ☉ and time of day ☉ ☉ > (Max. depth)...

Level stop

Level stop icon



Level stop
duration

Total time
of ascent

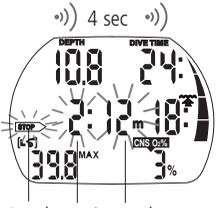
Deepest level
stop depth

On entering the level stop phase, "NO STOP" disappears and the arrow [STOP] appears. The [STOP] arrow flashes for 8 seconds and an audible alarm goes off. To complete the dive without being reduced to a lower MB level, all requested level stops must be observed.

The deepest level stop is displayed in metres (feet). The display <2: 3m> (<2: 10ft >) means that a level stop of 2 minutes at a depth of 3 metres (10ft) has to be observed. Deco information relative to L0 is shown on an alternate display (see ☉).

When a level stop has been finished, the next higher level stop – if present – is displayed. When all level stops have been observed, the arrow [STOP] extinguishes and "NO STOP" reappears. The indication of time shows the MB no-stop time again.

- ☉ (Max. depth ☉ ☉ >) Temperature ☉ ☉ > MB level active ☉ ☉ > No-stop time or deco information relative to L0 ☉ ☉ > Temperature ☉ and time of day ☉ ☉ > (Max. depth)...



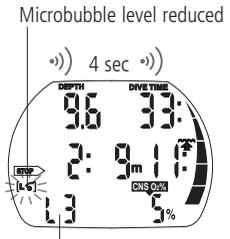
Level stop ignored



WARNING

The attention message "Level stop ignored" is activated if the requested level stop is not observed. An attention beep* goes off the arrow **STOP**, the depth and duration of the ignored level stop begin flashing.

To complete the dive without being reduced to a lower MB level, you must descend to the prescribed depth immediately!



Microbubble level reduced



WARNING

The warning "microbubble level reduced" is activated if the diver ascends more than 1.5m (5ft) above the required level stop. Aladin® TEC reduces the microbubble level, an attention beep* goes off and the new MB level is shown in the lower left corner.

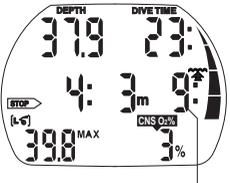
To complete the dive without being further reduced to an even lower MB level the new level stop must be observed.

New microbubble level



* Attention beeps can be suppressed with "set 1" (->41) or via SmartTRAK.

4.2 Total time of ascent



Total ascent time

Aladin® TEC displays the level stop information and the total time of ascent. This includes the time of ascent as well as all level stops.



The total time of ascent is calculated on the basis of the prescribed ascent rate. Total time of ascent can be subject to change if the ascent rate is not ideal (100%).

4.3 Decompression obligation

Aladin® TEC calculates and displays level stops to reduce microbubble formation, but it also calculates the diver's decompression data.



WARNING

Avoid decompression dives when diving with MB levels.

How to avoid decompression stops:

- Check ordinary no-stop time by pushing until L0 appears.
- Observe the nitrogen loading bar (it is relative to L0) ->24, ->31
- If the nitrogen loading bar flashes (less than 3 minutes to deco): ascend slowly a few metres/feet.



Decompression obligation



WARNING

At the beginning of a decompression phase an attention beep goes off and the **DECO** symbol flashes for 8 seconds.

In order to prevent a dive with long decompression stops it is recommended that you ascend a few metres/feet on seeing this message.



Level stop information

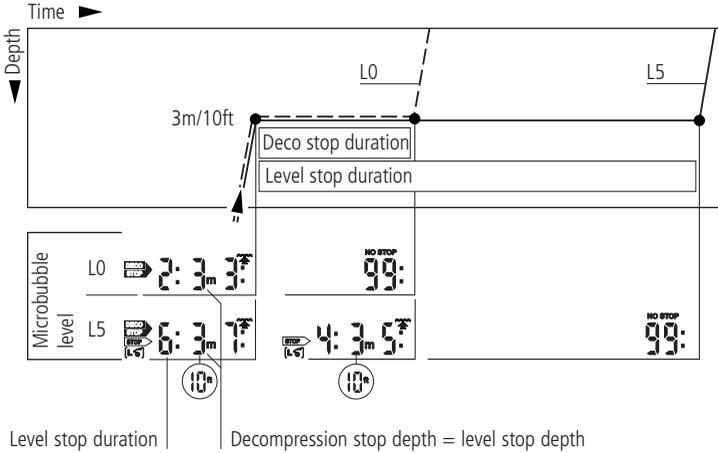
If decompression stops become obligatory, the **DECO** symbol will be displayed. The total ascent time will now also contain a decompression stop.

4 TEC Functions during the dive with microbubble levels

4.4 Level stop and deco stop

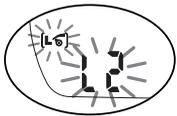
When the level stop depth equals the depth of the first obligatory decompression stop and if you are within 1.5m/5feet of the stop depth itself, Aladin® TEC shows  and  (level stop). The indicated duration refers to level stop duration.

Since level stops are more restrictive than decompression stops, when all decompression obligations have been observed the display changes from   to  only.



5 Complete a dive with MB levels

A dive with MB levels is completed the same way as a dive without MB levels (LO) (->25), save for the following exceptions:



If the MB level has been reduced during the dive, Aladin® TEC will display a flashing MB level symbol and the current MB level for five minutes after reaching the surface. The dive is then completed and Aladin® TEC changes to user mode with the MB level switching back to the original MB setting.

Repetitive dives and microbubble levels: If during a dive a level stop is being ignored and the diver starts another descent shortly afterwards, Aladin® TEC might immediately request level stops. To complete the dive with the initially set MB level all level stops must be observed.

 Aladin® has a dive planner which allows the planning of no-stop dives. **TEC** The dive planner allows planning of decompression dives.

- Basis of the planning:
- selected fraction of oxygen and MOD
 - **TEC** selected water type
 - **TEC** selected microbubble level
 - water temperature of the most recent dive
 - altitude range (if any)
 - status of saturation at the time the dive planner is selected
 - assuming a normal workload of the diver and observance of the prescribed ascent rates



If two or more divers using computers are planning a dive, planning for all divers has to be based on the dive computer showing the shortest no-stop times. Failure to do this may lead to serious injury or death from decompression sickness.

1 Planning a no-stop dive

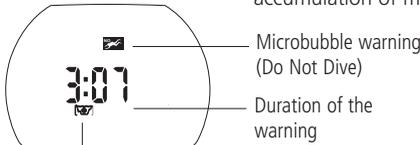
To select the dive planner Aladin® must be in user mode (**time of day display**). Push   or   until the symbol for the dive planner () appears. (The dive planner cannot be selected in gauge mode.)

Select dive planner

  or  

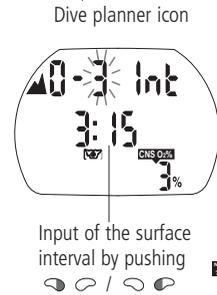
until 

 The microbubble warning and its duration are displayed if Aladin® detects an increased risk due to the accumulation of microbubbles.

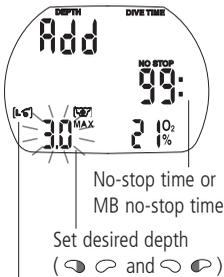


Enter the dive planner with  .

The input window for the time interval is displayed if there was a remaining desaturation (DESAT) before the dive planner has been selected. This surface interval between now and the beginning of the dive can be changed with   and   in steps of 15 minutes. Aladin® displays the CNS O₂ % value and the altitude section to which you may not rise at the end of the selected surface interval.



 If a microbubble warning (no dive) and its duration has been displayed, Aladin® proposes this time – rounded up to the next 15 minutes – as surface interval. If the proposed interval is shortened, the microbubble warning appears.



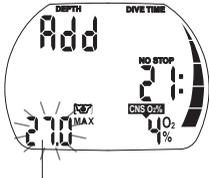
Confirm with   the displayed interval (if applicable). With   and   set the depth for which you want to know the no-stop time. **TEC** If a microbubble level has been selected (L1-L5), the MB no-stop time is shown.

Depths deeper than the MOD for the selected gas (O₂ mix) are not displayed.

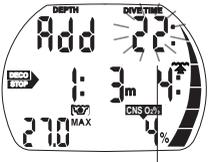
 On page 26 you will find further information and safety considerations regarding the microbubble warning.

Icon for microbubble level L1-L5

2 TEC Planning a decompression dive



Confirm the desired depth with 



Set desired bottom time with  and 

1. Activate the dive planner for a no-stop dive ->35.
2. Set the desired depth with  and , then switch into decompression planning by pushing . Aladin® TEC shows the bottom time (no-stop time + 1 minute) and the appropriate decompression information or level stop data respectively.
3. <Add> asks that you set the bottom time. This is done with  and . Aladin® TEC calculates the decompression information for this set bottom time. If an MB level (L1-5) is selected, Aladin® TEC calculates the level stop data.

CNS O₂% values higher than 199% will be displayed as 199 %.

Ascent time > 99 minutes is displayed as <- ->

Deco stop depth deeper than 27m (90 ft) is displayed as <- - : - - >

CNS O₂ ≥ 75%: CNS O₂% symbol starts flashing

CNS O₂ ≥ 100%: CNS O₂% symbol and CNS O₂% value are flashing

MB level stop deeper than 27m (90 ft): MB level will be reduced, pushing a button shows the new MB level 

3 Leaving the dive planner

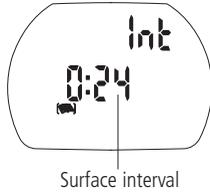
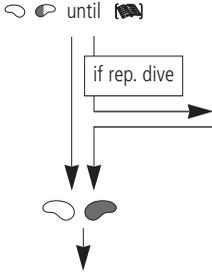
By pushing once or twice  you can exit the dive planner. This also occurs after three minutes without operation.

1 Survey

Aladin® records the profiles of about 25 hours of diving. This information can be transferred to a PC with the standard infrared interface (IrDA) and the Windows® software SmartTRAK. All dives in the memory can be displayed directly on the dive computer. A dive is only entered in the logbook if the dive time is longer than 2 minutes.

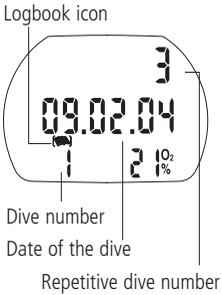
2 Operation

From the **time of day display** you can select the logbook  with   .



If there was a remaining desaturation time (DESAT) before selecting the logbook, the time since the last dive (surface interval) is displayed.

With   you enter the logbook.



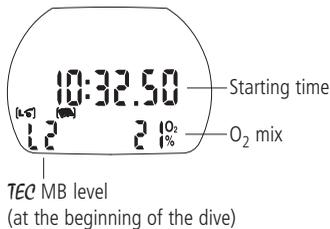
The most recent dive is displayed (dive number 1).

From here you can...

...get more information about the displayed dive by pushing   (see next page)

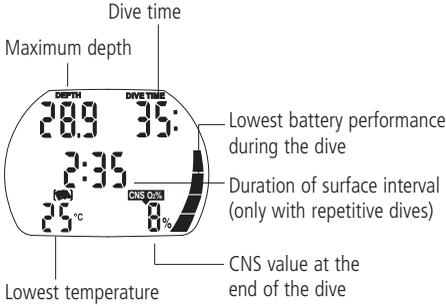
...select other dives. Each time you push   or   causes a jump to the next or previous dive. At the end of the logbook Aladin® displays statistic information ->38.

Aladin® displays further information about the selected dive.



Push   to get more information about the dive.

VII Logbook



If a dive is started within adaptation time (after a change of altitude), the adaptation time is displayed instead of the surface interval.

Further possible information about the dive:

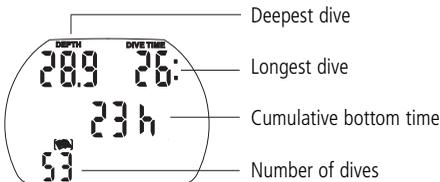
- | | | | |
|--|--|--|--|
| | Too fast ascent* | | DESAT Desaturation was reset before the dive (in "set 1") |
| | Ignored decompression stop* | | DESAT Desaturation was reset before the dive by removing the battery |
| | Ignored decompression stop* | | Battery quality factor has been 3 bars or less during the dive |
| | TEC Diving in SOS mode (gauge mode) | | TEC Diving in gauge |
| | Altitude range | | TEC Average depth (gauge mode) |
| | TEC MB level dive (L1-L5) | | Microbubble warning after the dive |
| | TEC Ignored MB level stop* | | |

*Alarms during the dive

↶ ↷ gets you back to the dive list (first level screen within logbook). From here you can advance to the next dive of interest and press ↶ ↷ to retrieve more information about that dive etc.

Statistic information

From the **time of day display** you can get the following statistic information over all dives. Push ↶ ↷, ↶ ↷ and ↶ ↷:



Leaving the logbook

By pushing once or twice ↶ ↷ you can exit the logbook. The logbook closes automatically after 3 minutes without operation.

1 TEC Altitude adjustment The altitude adjustment does not affect altitude ranges nor any calculations.



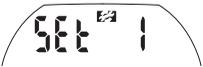
Adjust the altitude indication to your current altitude.

- Starting from the **time of day display** push or until the mountain symbol and the altitude appear.
- Confirm that you wish to change the displayed altitude by pushing . The altitude starts to flash.
- Change the altitude in increments of 10 m / 50 feet by pushing or .
- Confirm the selected altitude with .

2 Menu "set 1"

With menu "set 1" or SmartTRAK you can configure the following items (dive functions):

Setting	Range	Default / Setting in Aladin® PRIME	Page
• TEC Depth alarm	5 - 100 m (20 - 330 feet) on/off	40m (130ft), off	->39
• TEC Dive time alarm	5-195 min., on/off	60 min., off	->39
• TEC Safety stop duration	1-5 min.	3 minutes	->40
• TEC Maximum partial pressure of oxygen (ppO ₂ max)	1.2-1.6 bar	1.4 bar	->40
• Time limit to reset the O ₂ % mix to air	no reset / 1 - 48 hrs.	no reset	->40
• Unit system	metric/imperial		->40
• TEC Water type	on (salt water) / off (fresh water)	on (salt water)	->40
• TEC Backlight illumination duration	2-12 sec.	6 sec.	->40
• Audible attention signals	on / off (SmartTRAK: selective)	on	->41
• Water contacts	on / off	on	->41
• Reset desaturation	on / off	no reset	->41



Starting from the **time of day display** push or until "set 1" appears.

Confirm that you wish to enter into the menu of "set 1" by pushing .

Once entered into the menu you can scroll with and through the menu.

TEC Setting the depth alarm

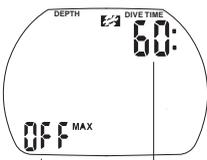


Status Alarm depth

- Confirm that you wish to change the depth of the alarm or to switch it on or off by pushing . The depth starts to flash.
- Change the depth in increments of 5 m / 10 feet by pushing or .
- Confirm the selected depth with . "On" or "Off" starts to flash.
- "On" indicates "activated", "Off" indicates "deactivated".
 switches between "On" and "Off".
Confirm the selected status with .

See also page 21.

TEC Setting the dive time alarm



Status Alarm time

- Confirm that you wish to change the time of the dive time alarm or to switch it on or off by pushing . The alarm time starts to flash.
- Change the alarm time in increments of 5 minutes by pushing or .
- Confirm the selected alarm time with . "On" or "Off" starts to flash.
- "On" indicates "activated", "Off" indicates "deactivated".
Switch between "on" or "off" by pressing .
Confirm the selected status with .

See also page 20.

TEC Setting the safety stop duration

Duration of the safety stop

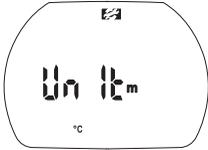
1. Confirm that you wish to change the duration of the safety stop by pushing . The duration starts to flash.
2. Change the duration in increments of 1 minute by pushing or .
3. Confirm the selected duration with .

TEC Setting the maximum partial pressure of oxygen (ppO_{2 max})ppO_{2 max}

1. Confirm that you wish to change the ppO_{2 max} by pushing . The current value starts to flash.
2. Change the value in increments of 0.05 bar by pushing or .
3. Confirm the selected value with .

Setting the time limit to reset the O₂ % mix to airTime limit to reset O₂ mix to air

1. Confirm that you wish to change the time limit of the reset by pushing . The current setting starts to flash.
2. Change the time limit by pushing or . (1 - 48 hrs. or no reset: "-- h")
3. Confirm the selected value with .

Selecting the units

1. Confirm that you wish to change the units by pushing . The selected units are displayed (m / ft / °C / °F).
2. Push . "m" or "ft" starts to flash.
3. Switch with between "m" and "ft".
4. Confirm the selected unit with . "°C" or "°F" starts to flash.
5. Switch with between "°C" and "°F".
6. Confirm the selected unit with .

TEC Selecting the water type

1. Confirm that you wish to change the selected water type by pushing . "On" or "off" starts to flash. "Salt on" indicates salt water, "salt off" indicates fresh water.
2. Switch with between "salt on" and "salt off". Confirm the water type with .

TEC Setting the backlight duration

1. Confirm that you wish to change the duration of the backlight illumination by pushing . The value starts to flash.
2. Change the duration with . (2-12 sec)
3. Confirm it with .

Switching the audible attention signals on and off



With this option you can switch off the audible attention signals only (the audible alarms remain active). Refer to page 17 to see this distinction.

1. Confirm that you wish to change the setting of the audible attention signals by pushing . "On" or "off" starts to flash.
2. Switch between "on" or "off" by pressing .
3. Confirm the setting with .

Switching the water contacts on and off



On submerging in water the water contacts switch on Aladin® automatically.



WARNING

If you chose the option „Water contacts off“, Aladin® will turn on with a delay of up to 1 minute into the dive. This will affect functioning of the computer.

Make sure that the computer is on before starting the dive.

1. Confirm that you wish to change the setting of the water contacts by pushing . "On" or "off" starts to flash.
2. Switch between "on" or "off" by pressing .
3. Confirm the setting with .

Resetting the remaining saturation



WARNING

Diving after a reset of the remaining saturation may lead you into potentially hazardous situations which could result in death or serious injury.

After a reset of the remaining saturation do not dive for at least 48 hours.

If you dive after resetting the remaining saturation the computer will miscalculate your decompression, which may result in serious injury or death.

Reset the remaining saturation only if you know you will not be diving, flying or going to higher altitude for the next 48 hours.

Resetting the desaturation should only be done when there is a valid reason, e.g. loaning the computer to somebody who has not dived in 48 hours or more. When the computer itself has remaining saturation you must assume full responsibility for the consequences of resetting the remaining saturation.



1. Confirm that you wish to reset the displayed saturation by pushing . "On" starts to flash.
2. Switch between "on" or "off" by pressing .
3. Confirm the setting with . If you have selected "off", "code" and "000" appear.
4. Set the first digit by pushing and . Confirm with . Repeat point 4 for the next 2 digits. If you entered the right code the desaturation will be reset to zero (desat off)

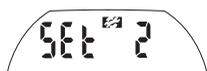


Code: 313

3 Menu set 2

With menu "set 2" or SmartTRAK you can configure the following items:

Setting	Range	Default	Page
• Alarm clock	0 - 23 h 59 min., on/off	12:00, off	->42
• UTC zone	±13 hrs., increments: 15 min.	0:00	->42
• Time of day	hours:minutes	GMT	->42
• 24 or AM/PM setting	24 (off) / AM/PM (on)		->43
• Date			->43
• LCD contrast	1 (low) -12 (high)	1 (low)	->43
• IrDA speed	low / high	high	->43
• Sound	on / off	on	->44
• Show Aladin® serial number			->44



Starting from the **time of day display** push or until "set 2" appears.

Confirm that you wish to enter into the menu of "set 2" by pushing .

Once entered into the menu you can scroll with and through the menu.

Setting the alarm clock time



The alarm clock goes off only at the surface. "Sound" must be turned "on" in "set 2".

1. Confirm that you wish to set the alarm time by pushing . The hours start to flash.
2. Set the hours by pushing or .
3. Confirm the setting with . The minutes start to flash.
4. Set the minutes by pushing or .
5. Confirm the setting with . "On" or "off" starts to flash.
6. "On" indicates "activated" (**time of day display** shows), "off" indicates "deactivated".
Switch between "on" or "off" by pressing .
7. Confirm the selected status with .

Setting the UTC offset (time zone)



The UTC offset allows you to quickly change the time when travelling to a new time zone.

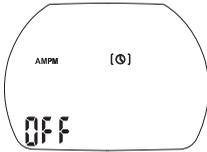
1. Confirm that you wish to set the UTC offset by pushing . The hours start to flash.
2. Set the hours by pushing or (±13 hrs.).
3. Confirm the setting with . The minutes start to flash.
4. Set the minutes in increments of 15 minutes by pushing or .
6. Confirm the selected status with .

Adjusting the time of day



By default the time is set to Greenwich Mean Time (GMT). You can adjust it to your time zone either in this menu or using the UTC offset (see above).

1. Confirm that you wish to adjust the time of day by pushing . The hours start to flash.
2. Set the hours by pushing or .
3. Confirm the setting with . The minutes start to flash.
4. Set the minutes by pushing or .
5. Confirm the setting with .

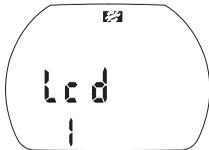
Selecting 24 hours or AM/PM setting

1. Confirm that you wish to change the setting by pushing . "On" or "off" starts to flash.
2. Switch with between "on" (AM/PM) and "off" (24 h).
3. Confirm the setting with .

The 24 h - AM/PM setting influences the display of the date (see next page).

Adjusting the date

1. Confirm that you wish to adjust the date by pushing . The first day (month) starts to flash.
2. Set the day (month) by pushing or .
3. Confirm the setting with . The month (day) starts to flash.
4. Set the month (day) by pushing or .
5. Confirm the setting with . The year starts to flash.
6. Set the year by pushing or .
7. Confirm the setting with .

Adjusting the LCD contrast

1. Confirm that you wish to adjust the LCD contrast by pushing . The current setting starts to flash.
2. Set the contrast by pushing or .
3. Confirm the setting with . Low contrast: (1), high contrast: (12)

Selecting the IrDA speed

The default setting is high. If you have problems to establish a reliable IrDA connection, select "low".

1. Confirm that you wish to change the IrDA speed by pushing . "Lo" (low) or "hi" (high) starts to flash.
2. Switch with between low and high.
3. Confirm the setting with .

Low: 9600 bits / second

High: max. 57 600 bits / second

Switching the sound on and off



If you turn off the sound, the buzzer is effectively deactivated. You will have no audible warnings (alarms and attention messages)! Without audible warning you could get into potentially hazardous situations, which could result in death or serious injury.

You must assume full responsibility for turning off the sound.



1. Confirm that you wish to change the setting by pushing . "On" or "off" starts to flash.
2. Switch with between "on" and "off".
3. Confirm the setting with . If you have selected "off", "code" and "000" appear.
4. Set the first digit by pushing and . Confirm with . Repeat point 4 for the next 2 digits. If you entered the right code the sound will be turned off.

Code: 313



Setting the "sound" to "off" applies also to surface functions (mountain alarm, wake up alarm, change of altitude range).

Showing the hardware serial number of Aladin®



ID Number

This number is needed when reporting problems or for other maintenance related issues.

1 Technical information

- Operating altitude:** with decompression information: sea level up to approx. 4000 m w/o decompression, automatic gauge mode (at any altitude)
- Max. displayed depth:** *PRIME* 90m; *TEC* 120m, resolution between 0.8 m and 99.9 m: 0.1 m, >99.9 m: 1m



- Do not dive deeper than the limits given by the chosen fraction of oxygen (nitrogen narcosis, oxygen toxicity).
- Never dive deeper than your training qualification (experience) allows you.
- Always observe local dive depth restrictions.

Decompression calculation depth range: *PRIME* 0.8m to 90m; *TEC* 0.8 to 120m

Maximum environment pressure: *PRIME* 10 bar; *TEC* 13 bar

Clock: Quartz clock, time, date, dive time display up to 199 minutes.

O₂% Mix: Adjustable between 21%O₂ (compressed air) and 50% O₂ (*TEC* 21-100% O₂)

Operating temperature: -10° to +50°C (14°F to 122°F).

Power supply: CR2450, recommended battery: SONY CR2450, RENATA CR2450

Life of the battery: 2-3years or 200-300 dives. Actual life of the battery depends on the quantity of dives per year, the use of the backlight and the length of the dives. In cold water the life of the battery is reduced. Not all CR2450 batteries are the same, and low quality batteries can have very short life. We strongly recommend the use of SONY or RENATA batteries.

2 Maintenance

Aladin® is virtually maintenance free. All you need to do is to rinse it carefully with fresh water after each use and to have the batteries changed when needed ->45. To avoid possible problems with your Aladin®, the following recommendations will help assure that it will give you years of trouble free service:



- Avoid dropping or jarring your Aladin®.
- Do not allow your Aladin® to be exposed to direct, intense sunlight.
- Rinse your Aladin® thoroughly with fresh water after each dive.
- Do not store your Aladin® in a sealed container; make sure there is free ventilation.
- If there are problems with the water contacts, use soapy water to clean Aladin® and dry it thoroughly. The surface of your Aladin® housing can be treated with silicone grease. Do not apply grease to the water contacts!
- Do not clean Aladin® with liquids containing solvent (apart from water).
- Check the battery capacity before each dive ->13.
- If the battery icon appears, replace the battery ->45.
- Diving with a weak battery: Aladin® may stop working during the dive. Service icon and error code "E3" or "E6" appear. Close the dive and replace the battery ->45.
- Service icon and error code "E3" appear on the surface: replace the battery ->45.
- All error codes other than E3: Aladin® must not be used for any further dives. Take your dive computer to an authorized SCUBAPRO UWATEC dealer.



2.1 Replacing the battery (Battery kit 06.201.919 includes battery and Teflon coated o-ring)



Removing the battery clears all physiological data including saturation. This means that for a repetitive dive the computer will not compute correctly. Diving after replacing the battery when there is desaturation time left on the computer can lead to serious injury or death from decompression sickness. Change the battery only under these conditions:

- After a dive if you know you will not be diving, flying or going to higher altitude for the next 48 hours.
 - Before a dive if there is no desaturation time left on the computer.
- The change must be made with particular care in order to prevent water from seeping in. The warranty does not cover damages due to an improper replacement of the battery.

**WARNING**

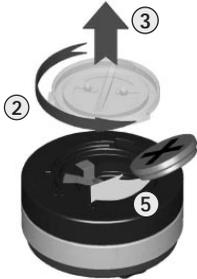
Never touch the metal surface of the battery with bare fingers. The two battery poles must never be short circuited.

Procedure:

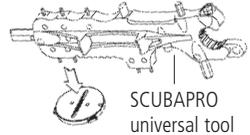
To replace the battery you need a coin or the SCUBAPRO universal tool and a clean cloth.

**WARNING**

- A leaking battery cap may lead to the destruction of Aladin® by water seeping in or cause Aladin® to switch off without prior notice.
- Always open the battery compartment in a dry and clean environment.
- Only open the battery compartment to replace the battery.



1. Dry Aladin® with a soft towel.
2. Turn the battery cap with a coin or with the SCUBAPRO universal tool.
3. Remove the battery cap.
4. Remove the o-ring carefully. Do not damage the sealing surfaces.
5. Remove the battery. Do not touch the contacts.

SCUBAPRO
universal tool

Protect the environment and dispose the battery properly.

**WARNING**

If you notice traces of seeping water, damages, or other defects on the o-ring, do not use Aladin® for further dives. Take it to an authorized SCUBAPRO UWATEC dealer for check and repair.

6. Always insert a new o-ring when you replace the battery and dispose the old o-ring. Make sure that the new o-ring is in perfect condition, and that o-ring, o-ring groove and the sealing surfaces are free of dust and dirt. If necessary, clean the parts with a soft cloth. Fit the o-ring in the o-ring groove of the battery cap.

**WARNING**

7. Use only an original UWATEC o-ring PN 06.201.610. This o-ring is Teflon coated and does not require additional lubrication.
8. Do not lubricate the o-ring as the lubricant will chemically attack the battery cap.

**WARNING**

9. Check the proper polarity of the battery. Aladin® can be damaged if you do not insert the battery correctly. Insert the new battery, with "+" pointing outwards, into the battery compartment.



After battery replacement Aladin® will perform an automatic test (8 sec.) and gives a short beep when the test is done.

**WARNING**

10. The battery cap can be installed with a $\pm 120^\circ$ offset. The alignment circles are there to ensure proper positioning of the cap. If the rotation is stopped before alignment, watertightness may not be ensured. If the rotation is forced beyond the alignment, the cap may break. Damage to Aladin® due to improper placement of the battery cap is not covered by warranty.



Alignment circles

Push the battery cap firmly down and turn it clockwise until the two circles are aligned.

11. Check Aladin® by switching on   ->18 .

3 Warranty

The warranty only covers dive computers which have been bought from an authorised SCUBAPRO UWA-TEC retailer. The warranty is given for a period of two years.

Repairs or replacements during the warranty period do not increase the warranty period.

In order to put forward a warranty claim: send the dive computer together with a dated receipt of the purchase to your authorised retailer or an authorised servicing point.

UWATEC reserves the right to determine the merits of a warranty claim and to determine whether the computer will be repaired or replaced.

Excluded are faults or defects due to:

- excessive wear and tear;
- exterior influences, e.g. transport damage, damage due to bumping and hitting, influences of weather or other natural phenomena;
- servicing, repairs or the opening of the dive computer by anybody not authorised by the manufacturer;
- pressure tests which do not take place in water;
- diving accidents;
- improper placement of the battery cap.

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