THE SYSTEM



You must carefully read this entire manual before using your Aladin® Air.

Diving has many inherent risks. Decompression sickness is among the most serious of those risks. Even if you follow the instructions of this manual in a careful fashion, it is still possible that you may be seriously injured or die from decompression sickness or some other inherent risk of scuba diving. Unless you are fully aware of these risks and are willing to personally accept and assume responsibility for those risks, do not use the Aladin[®] Air!

The Aladin[®] Air is a sophisticated decompression tool to assist a trained and certified diver in making decisions concerning dive planning and execution. As with any tool, the Aladin[®] Air may be misused if the following safety and operational precautions are not strictly followed. If they are followed, careful use of the Aladin[®] Air can increase your diving enjoyment and reduce your risk of decompression sickness. If they are not, you will be placing yourself at serious risk for decompression sickness.

While the Aladin[®] Air is a technically advanced tool based on a biophysical model of decompression sickness, neither it nor any other diving computer (or table) can actually monitor the physiological changes that occur in your body as you dive. In addition, each diver will vary in his or her susceptibility to decompression sickness. Not only that, but each individual diver's own susceptibility may vary from day to day. Combined with the fact that decompression modelling is an inexact science, and of necessity must be based at least partly on certain unproven assumptions, it is incumbent upon you, the individual diver, to dive responsibly and to carefully follow all standard safe diving practices as well as the admonitions contained in this manual.



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

Remarks:



Informations and tips which are important for optimal use of the functions of your ${\sf Aladin}^{\circledast}\,{\sf Air}.$



The following symbols are used in the operating manual:



flashing display



acoustic alarm signal



Operating instruction for manual input (Example: bridging contacts B and E)

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Guidelines for the use of Aladin® Air:

The following guidelines for using Aladin[®] Air 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 will not occur.

- In accordance with the recommended maximum diving limit of all instructional agencies, do not dive deeper than 130 feet.
- Do not use the Aladin[®] Air for planned decompression diving. The decompression algorithm contained in the Aladin[®] Air should be used only for emergency or unintended decompression.
- On all dives with the Aladin[®] Air, make a safety stop for three to five minutes within the ten to thirty feet zone.
- Never use the Aladin[®] Air for repetitive, "square" dives deeper than 60 feet. A square dive is a dive that is
 performed for its duration at a uniform depth.
- Always make the deepest dive of the day first when repetitive dives are planned, and for each successive dive make sure that the deepest portion of that dive is done at the beginning of the dive.
- The Aladin[®] Air is designed for dives made with compressed air only. Do not use the Aladin[®] Air for dives made with nitrox or other mixed gases.
- If your diving cylinder is equipped with a reserve or "J"-type valve, make certain that the reserve function is in an open (down) position. Failure to keep the reserve open will result in the improper calculation of the dive data which depends on tank pressure.

- All divers using dive computers to plan dives and indicate or determine decompression status must use their own computer.
- If the Aladin[®] Air fails 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) should be initiated immediately.
- On any given dive, all divers in a buddy group must follow the most conservative dive computer for that particular dive.
- You should not dive for a period of twenty-four hours before activating the Aladin[®] Air to use it to plan or control your diving.
- You MUST follow the ascent rates as indicated by the Aladin[®] Air, and should the computer fail for any reason, you must ascend at a rate of no greater than 60 feet per minute.
- You MUST be familiar with all signs and symptoms of decompression sickness before using the Aladin® Air! Seek IMMEDIATE treatment for decompression sickness should any of these signs or symptoms occur after a dive! There is a direct correlation between the efficacy of treatment and the delay between the onset of symptoms and the treatment for decompression sickness.
- Always observe the optical and acoustic alarm signals of the Aladin® Air. Avoid situations of increased risk
 for decompression sickness which are marked with a warning sign in this operating manual.
- Never dive the Aladin[®] Air to the limit. Neither the Aladin[®] Air, nor any other diving computer or decompression table should be pushed to its limit. Give yourself a margin of safety by always leaving at least a few minutes in the "no-stop" box before making your ascent.
- Avoid repeated ascents and descents (yo-yo diving) while using the Aladin® Air.

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I INTRODUCTION

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- 2 Aladin® Air Your Personal Companion
- 3 The Calculation Model ZH-L8 ADT
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1 Aladin[®] Air – Diving as never before

Aladin[®] Air uniquely combines in a single instrument all the information necessary for save and comfortable diving.

The dive computer constantly registers the data of the dive and of the individual comportment of the diver. Aladin[®] Air controls the gas saturation of your body including air consumption, water temperature and individual performance and permanently displays the prognosis of the remaining dive time. This allows you to make the most of your dive time while diving more safely than ever thanks to the new and revolution-

ary calculation model. The integrated compass complements the equipment of the Aladin[®] Air console. The clear arrangement of the data in the dis-

plays, the compact, ergonomically optimized design and the comfortable way of carrying make the Aladin[®] Air an instrument with an additional plus in easy handling and safety.

Please read this operating manual carefully and to the last page!

For the complementation of Aladin[®] Air you can choose between the digital compass True Track or a conventional mechanical device. You will find the operation instructions for the compass in a separate manual.

2 Aladin[®] Air – Your Personal Companion

By considering your individual depth and time profile, as well as workload and water temperature, the Aladin[®] Air can be considered a *personal* diving control instrument. Relying on the latest results of medical and physiological research for its decompression modeling, the Aladin[®] Air differs from earlier diving computers in a number of significant ways:

- The ZH-L8 ADT decompression calculation model considers eight body tissues as well as the diver's workload and ambient temperature. This allows for an even more precise calculation of a modeled risk for decompression sickness which can lead to greater diving safety.
- Aladin[®] Air is directly connected to the diving equipment by means of a high-pressure hose and therefore permanently receives the current compressed air data. Tank pressure can be easily checked at any time. By monitoring the reduction in air pressure, the Aladin[®] Air calculates the diver's work load and provides a prediction of the

remaining time allowed at the current depth based upon tank pressure and air consumption. Thus the remaining bottom time (RBT) displayed on the Aladin[®] Air considers depth, tank pressure, as well as air consumption to give the diver a more accurate calculation of when the ascent **must** be begun according to the calculated decompression program.

WARNING

If a tank with a reserve or "J"-Type valve is used, the reserve must be in the open (down) position in order to receive a correct air time calculation.

 The Aladin[®] Air uses both optical and acoustic alarms. The acoustic alarm uses varied sound signals to assist in establishing the reason for the alarm.

2 Aladin[®] Air – Your Personal Companion

WARNING

You must strictly observe all optical and acoustic alarms and take appropriate action based upon those alarms to avoid serious injury or death from decompression sickness!

- By using the Aladin[®] Air's logbook, a diver may directly call up information from the last 19 dives.
 When interfaced with a personal computer, 37 dives and 200 minutes of dive profile in intervals of 20 seconds can be read out.
- The dive planner allows the advance planning of no stop dives with readily determinable surface intervals.

WARNING

Although the Aladin[®] Air can be used to plan decompression dives, such dives are beyond the realm of recreational or sport diving and must not be attempted by recreational or sport scuba divers.

The handy and elegant console with compass (choice between the digital compass True Track or a conventional mechanical compass) and the dive computer Aladin[®] Air combines all information necessary for safe and comfortable diving. Easy handling, clearly arranged presentation of the data in the displays and the comfortable arrangement of the instruments are the crucial points of the Aladin[®] Air luxury.

3 Calculation Model ZH-L8 ADT

3.1 Description

The Aladin[®] Air uses a new decompression calculation model known as the ZH-L8 ADT. This model uses eight compartments or "tissue" groups with nominal half time periods from 5 to 640 minutes. This ^o model differs considerably from other models by its ^o consideration of the following additional physiological processes:

 Blood perfusion to the body's organs is not constant. Skin and muscle tissues are especially subject to changes in blood perfusion, depending on temperature and work load. Changes in blood perfusion to these organs change their nitrogen saturation tolerance. The model used by the Aladin[®] Air takes these effects into account and thus the "skin" and "muscle" compartments in the Aladin[®] Air show variable halftime periods and saturation tolerances. Decompression information is calculated according to the diver's individual workload and decrease in skin temperature. The decrease in skin temperature is based upon the water temperature and the dive time. By considering these changes in saturation, the time that must be spent at the surface prior to flying can

> be considerably lengthened, depending upon

the depth, time, and temperature of a dive, as well as the diver's workload during that dive.

3 Calculation Model ZH-L8 ADT

- 2. The decompression model used by the Aladin® Air considers nitrogen in both its dissolved as well as its gaseous phase (microbubbles). Formation of microbubbles is considered to be a strong indicator of a high risk of decompression sickness. The Aladin® Air model calculates the formation of microbubbels depending on various assumed influences in arterial and venous blood. In normal. slow ascents, microbubbles form mainly in venous blood. During fast ascents, microbubbles may also form in arterial blood and in the body's tissues as well. If a particular dive profile may result in the creation of microbubbles according to the Aladin[®] Air's model decreased bottom time and/ or increased decompression times as well as increased "no fly" time will be indicated.
- Microbubbles can form if the diver makes too fast an ascent, ignores required decompression stops, or makes repeated ascents during a dive (yo-yo diving). These microbubbles can form in arterial

blood as well as in the body's tissues. If these microbubbles partially impair circulation, the rate of gas diffusion and saturation tolerance for those tissues immediately surrounding this area of impaired circulation are changed. If required, both decompression time and RBT will be adjusted in such a way that already existing microbubbles will stop growing. Increased decompression time will also assist those local areas of impaired circulation to desaturate with less risk of decompression sickness.

 The calculation of microbubbles results in altered ascent instructions. If microbubbles are assumed to be present basedon the data used by the Aladin[®] Air, the ascent rate to the surface is reducted to 23 feet/minute. This will help prevent the formation of microbubbles in the arterial circulation and minimizes formation of microbubbles in the venous circulation after the dive.

3 Calculation Model ZH-L8 ADT

3.2 Advantages

On the first dives following responsible diving procedures, a diver using the Aladin[®] Air should never be required to decompress, although a three to five minute safety stop between ten and thirty feet is recommended for every dive. If, however, unplanned circumstances arise during the dive which increase the risk of decompression, the Aladin[®] Air can, if closely followed, reduce the risk of decompression sickness by reducing remaining bottom time and/or increasing decompression time. Some of the more common risk situations are as follows:

- Repetitive dives, especially those deeper than 60 feet and those with short surface intervals.
- Repetitive dives using square dive profiles.
- Repetitive diving over the course of several successive days.
- Diving in cold water.
- Diving with increased workloads.

- Yo-yo diving (repeated descents and ascents to the surface during a given dive).
- Flying within 24 hours after diving.

If a diver experiences any of these risk factors while diving, the Aladin[®] Air will decrease remaining bottom time without requiring decompression, or will add required decompression time in order to help minimize the risk of decompression sickness.



Do not use the Aladin[®] Air for planned decompression dives!

If signs or symptoms of decompression sickness occur after diving with Aladin® Air, seek IMMEDIATE treatment at the nearest recompression facility.

4 Safety in Diving

With its new decompression model and calculation of remaining air time at depth, the Aladin[®] Air is an extremely versatile tool which can increase your diving comfort and safety. As with any diving tool, however, ultimate responsibility for diving safety remains with the individual diver. The same responsible diving practices taught by all diving certification agencies are still absolutely necessary in order to safely dive with the Aladin[®] Air.

Certain mistakes which may be made by a diver, such as ascending at an excessive rate, going too deep, or staying too long at depth, may be overcome if the diver carefully follows the Aladin® Air's corrected ascent instructions. Of course, the Aladin® Air can do nothing to prevent the occurrence of lung overexpansion injuries or nitrogen narcosis, whose avoidance lies solely with the individual diver.

The Aladin[®] Air is a highly sophisticated technical instrument which, if used and maintained properly, will have high reliability. Despite that, no dive should be made with an Aladin[®] Air without a thorough understanding of decompression theory and dive table use, and every diver must have a set of decompression tables with him on every dive.

WARNING

Do not use the Aladin[®] Air without a set of accepted diving tables with you as a back up decompression tool on every dive.

Should decompression sickness occur, whether the Aladin[®] Air was used correctly or not, a detailed history of the previous dives may be used to allow a better diagnosis and the most effective treatment for the diver.

II ALADIN® AIR – THE SYSTEM

- 1 Description
- 2 Setting Up

3 Dive Computer

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3.2	Operating	_ 16
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1 Description



The Aladin® Air system consists of four units:

- 1 A high-pressure hose establishes the connection between the diving equipment and the dive computer and thereby ensures the measuring of the tank pressure. The hose is connected to the high pressure outlet of the regulator. The dive computer can be detached by means of a bayonet catch especially designed for this purpose and then used for the surface functions independently.
- 2 The dive computer displays all important dive data. The bipartite display shows general dive- and decompression data in the upper part; data calculated on the basis of the measured tank pressure are displayed in the lower part.





1 Description

- 3 The dive computer is equipped with a memory which stores dive data. The data can be temporarily stored in the storing extension MemoMouse and from there transferred to a MS-DOS personal computer.
- 4 The logbook software DataTrak manages the data of entered dives and offers a wide scope of graphical and statistical functions.

By means of the control software DataTalk it is possible to alter basic settings of the dive computer (see page 78).

MemoMouse and DataTrak/DataTalk are available on the market as options.



2 Setting Up

2.1 Mounting the high-pressure hose

The high-pressure hose ist mounted on the high-pressure outlet (HP-outlet) of the first stage of the regulator.



Mount the high-pressure hose on the HP-outlet. If the threadings do not match, you can optain an adaptor from your diving retailer.



Tighten the connection with a matching wrench.

2 Setting Up









2.2 Connecting the dive computer

Make sure that the tank valve is closed and the regulator is depressurised.

- Place the bayonet ring of the high-pressure hose on the connecting part of the dive computer in such a manner that the guiding pins of the bayonet ring grip into the guides provided.
- Turn the bayonet ring to the right until it reaches the stop and than let loose the ring. Make sure that the bayonet ring leaps back a few millimeters.



Check the correctness of the connection by forcefully pressing and pulling the hose. The bayonet ring must have a range of spring of a few millimeters.

- Open the tank valve and check the tightness of the connections.

The dive computer has switched on the display automatically during the build-up of the pressure. Check if the tank pressure is indicated in the lower display. The display switches off again after three minutes without operation or breathing activity.



Check tank pressure before every dive.

2 Setting Up







After diving, the dive computer can be disconnected. Make sure that the tank valve is closed and the regulator is depressurised. The dive computer cannot be disconnected under pressure.



Never try to disconnect the dive computer under pressure.





3.1 Switching on and off

Aladin[®] Air is permanently switched on and measures the surrounding pressure in regular intervals. However, the display is switched off.

Activating the display:

Automatically:	 On opening the tank valve (if Aladin® Air is connected) On submerging in water If a change of atmospheric pressure necessitates an adaptation (e.g. on driving over mountain passes)
Manually:	 By means of the contacts in the housing

Switching off the display:

- Automatically after 3 minutes without operation

3.2 Operating



Aladin[®] Air has 4 operating contacts B, E, +, - on the outside of the housing. For manual operation, touch base contact B and any one of the other three contacts above the display with moistened fingers.

It does not make a difference for the operation of Aladin[®] Air whether the dive computer is connected to the high-pressure hose or not.

Base contact, which has to be touched for all operations.

Enter contact. It serves the switching on of the computer, the activation of logbook and dive-plan-mode, and the switching between no-stop and decompression planning. It is also used to confirm inputs and is therefore comparable to the ENTER- or RETURN-key of a computer.

They serve the selection of logbook and dive-plan as well as the setting of values (time, depth, dive-number etc.).



II Aladin® Air – The System



 Aladin[®] Air is in a state of rest; no information is displayed (—> sleep-mode or —> surface-sleepmode).



- 2 Bridging B and E activates the display —> readymode or —> surface-mode.
- **3** A second bridging of contacts B and E activates the display of the remaining battery capacity for approximately 5 seconds. As soon as the battery capacity is 0%, a battery

alarm is sent (see page 35). There is still a small reserve left at bAt 0%.





4a Selecting the logbook function:

B and + Back: B and – or automatically after three minutes.



4b Activating the logbook: B and E. Aladin[®] Air shows the most recent dive.



5



depth AL	ADIN	dive time
	DIVEPLAN	
150		- 6.8: I
1 -1,60		00
max. depth	Ais	deco info



5b Activating the dive-plan:

B and E. Aladin[®] Air starts by listing no-stop times. If the dive-plan is activated out of the surface-mode, enter the desired interval by B and + or B and -.

Confirmation with B and E.





5c Leaving the dive-plan: B and E for approx. 3 seconds: or automatically after three minutes.

II Aladin® Air – The System

21

3.4 Operating modes Aladin[®] Air works in various operating modes:





Sleep-mode:

Activation: automatically

When Aladin® Air is not used, it is in the so called sleep-mode.

In that case, the electronics are "sleeping" in that the display does not show any information. The computer is briefly activated once every minute to measure at-mospheric pressure. The display remains switched off. If a change in altitude is recognized, Aladin[®] Air switches to —> surface-mode for 3 minutes.



Ready-mode:

Activation: By touching contacts B and E from sleep-mode. To check the display, all signs light up for 5 seconds.



Aladin[®] Air switches into ready-mode afterwards. Once in ready-mode, the display is switched on and altitude sections are eventually displayed. If the dive computer is under pressure, the tank pressure is indicated in the lower display.

By touching contacts B and E in the ready-mode once more, Aladin[®] Air will display the remaining battery capacity by percentage. Three minutes after activating the ready-mode, Aladin[®] Air will fall back into the —> sleep-mode.







swiss ma

Dive-mode:

Activation: automatically at depth of about 2 ft.

In dive-mode, all diving functions are monitored, i.e. depth and dive time displayed, maximum depth stored, saturation of tissues calculated depending on workload and temperature, no-stop time or decompression prognosis determined, ascent rate controlled and displayed and the correctness of the decompression procedure supervised.

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Wait-mode:

Activation: automatically on reaching the surface The wait-mode is activated if the the diver surfaces (diving depth less than 2 ft). At the surface, the dive is not completed and entered into the logbook for an interval of 5 minutes. This allows a short surfacing for the purpose of orientation.



swiss man

Surface-mode:

Activation: automatically after a dive or when changing altitude.

After a dive has been completed, Aladin[®] Air is in surface-mode. All data belonging to the surface interval are calculated and displayed: simulation of microbubble formation, actualization of the saturation of tissues depending on the calculated skin temperature and the assumed work load at the surface, calculation of desaturation time and no fly interval.

In order to save energy, Aladin[®] Air falls into the "surface-sleep" after 3 minutes. The functions of surface-mode are then carried out in the background. The atmospheric pressure is measured in surface-sleep once every minute. If the at-



mospheric pressure decreases, for example in case of change of altitude, Aladin[®] Air switches from sleep-mode or from surface-sleep into surface-mode automatically and displays the adaptation time. The adaptation time is the time after which all body tissues have adapted to the ambient pressure (= desaturation time).





Logbook-mode:

Activation: manually by contacts

Data of 19 past dives can be called up in the logbook-mode. It shows, for example, maximum depth, dive time, preceding interval, altitude sections, air consumption and eventual alarms. A dive is entered in the logbook if it has lasted more than 2 minutes. It also shows the interval which has passed since the last dive or a preceding change of altitude.

The logbook data of the last 37 dives and the detailed dive profiles of, maximum, the last 200 minutes (increments of 20 seconds) of diving are stored by Aladin[®] Air. The data can be transferred to the external storage extension MemoMouse and from there to an IBM compatible computer. For that purpose you need the software *DataTrak/DataTalk* available at your diving retailer.



Diveplan-mode: Activation: manually by contacts

The diveplan-mode serves the planning of a future dive. It allows the planning of no-stop dives with freely determinable depth and dive time. On repetitive dives, the surface interval can also be chosen at will. Calculations are based on the temperature data of the last dive and assuming normal workload.



SOS-mode: Activation: automatically

If the diver remains above a depth of 4 feet for more than three minutes without observing the prescribed decompression, the computer switches into SOS-mode after the dive and displays <SOS> instead of the depth. The computer is locked from use for the next 24 hours. Desaturation is further calculated including microbubbles in the tissues. Diving is again possible after 24 hours, but the SOS-mode can influence the calculations of Aladin[®] Air for three days after the incident due to the possible presence of microbubbles.



An eventual accident can be analysed by means of the Data/Trak software.



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

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III DIVING WITH ALADIN® AIR

- 1 Terminology/Symbols
- 2 Attention Messages and Alarms

- 3 Preparation for the Dive
- 4 Functions during the Dive

5 Functions at the Surface

6 Diving in Mountain Lakes

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1 Terminology/Symbols

The information on the display of the Aladin® Air varies depending on the kind of dive and the dive phase.

1.1 Display during no-stop phase

No-stop phase: Dive phase during which ascent is allowed without decompression stops.

Dive time: Time of the dive below depth of 4 ft.





current depth, until ascent must be started.

Decompression depth: Decompression time: Lowest stage is displayed. Prescribed duration of the decompression stop at the displayed decompression stage.

Total ascent time to surface: Total ascent time including decompression stops.



2 Attention Messages and Alarms

Aladin[®] Air draws the diver's attention to certain situations and warns the diver of unsafe diving practices. Attention messages and alarms are always optical and acoustic under water, only optical at the surface except the decompression alarm.



The acoustic attention messages (but not the alarms) can be switched off (see chapter VII page 78).

2.1 Attention messages

Attention messages are communicated to the diver optically by lit up symbols, letters or flashing figures. In addition, two short acoustic sequences can be heard (in an interval of 4 seconds) in two different frequencies. Attention messages come up in the following situations:

Dive in mountain lake On a change of altitude, the altitude section (0 - 3) and adaptation time is shown. See page 51.



End of no-stop phase In order to prevent a decompression dive: ascend a few feet.

•)) 4 sec •))

depth ALADIN	dive time
18	15:
125	*
max. depth Air	deco info

- 2 Attention Messages and Alarms
- •)) 4 sec •))



Remaining bottom time less than 3 minutes

Start ascent.



tank data 2 IN 7 Psi A 75; swas made

Out of breath warning

(increased air consumption). Breath more slowly, relax.



Warning of bubbles

Extension of the surface interval is recommended. See pages 50 and 74.



2.2 Alarms

Alarms are given to the diver optically by flashing symbols, letters or figures and symbols. In addition, an acoustic sequence in one frequency can be heard during the whole duration of the alarm. An alarm occurs in the following situations:



2 Attention Messages and Alarms





Ignoring decompression stop Descend to the prescribed decompression depth at once!

2.3 Alarm low battery



Computer battery low:

In dive-mode, <bAT> is indicated by a flashing display and alternating with the display of maximum depth as soon as battery capacity is 0%. In ready-mode and surface-mode, <bAT> is shown instead of maximum depth. Have the batteries changed by your retailer!

3 Preparation for the Dive

NARNING

The following description of the preparation of a dive is based on the assumption that the high-pressure hose is correctly mounted on the HP-outlet (see page 12).

If the high-pressure hose is not correctly mounted, it will not perform properly and serious injury or death may result.



- 1 Mount the regulator together with the high-pressure hose on the compressed air tank.
- 2 Check the reserve valve of your tank, the reserve valve must be open.





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If a reserve or "J"-type valve is used, the valve must be in the open (down) position for the Aladin[®] Air to work correctly.

- 3 Connect the dive computer with the high-pressure hose by means of the bayonet catch. Check the correctness of the connection.
- 4 Open the tank valve. The dive computer switches on automatically when pressure is building up. Check the test display: Are all the elements of the display activated?

3 Preparation for the Dive



5 Checking tank pressure. Change the diving equipment if the pressure displayed is insufficient.



tank data 2756 ^{psi} swiss made

6 The Aladin[®] Air is now in ready-modus.

It switches on automatically on being submerged in water and activates divemode, when a depth of more than 2 feet is reached. The first indication of the depth may be delayed for a few seconds.

In extremely pure freshwater, it is possible that the Aladin[®] Air will not automatically activate into the dive-mode.

4.1 Dive time

The whole time spent below a depth of 4 feet is displayed as dive time in minutes. While the dive time is running, the colon on the right of the figures is flashing in one second intervals. Maximum dive time displayed is 199 minutes.





If a dive lasts longer than 199 minutes, dive time is continued at 0 minutes, because the display cannot show a larger figure.

4.2 Current depth

Current depth is given in 4 inch-increments. On switching on and at a diving depth of less than 2 ft the void display <--> appears.



Depth measurement is based on freshwater. Therefore, Aladin[®] Air shows a slightly greater depth than actually true when diving in salt water, depending on the salinity of the water.

4.3 Maximum depth

Maximum depth is displayed if it is lower than the current depth (maximum indicator function). To prevent the display changing very frequently when diving in the vicinity of maximum depth, it is only displayed if it exceeds the current depth by more than three feet.



4.4 Ascent rate



Optimal ascent rate varies depending on depth between 23 and 67 ft/min. It is displayed in percent of the reference variable. 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.

The Aladin[®] Air provides an acoustic alarm if the ascent rate is 110% or greater of the set value. The intensity of the alarm increases in direct proportion to the degree 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.

- The Aladin[®] Air may require a decompression stop even within the no-stop phase because of the danger of the formation of microbubbles due to an improper ascent.
- Decompression time necessary for the prevention of microbubbles can increase massively if the ascent rate is exceeded.
- At great depth, too slow an ascent may cause heightened saturation of tissues and an extension of both decompression time and total ascent time. At shallow depth, a slow ascent may shorten decompression time because the tissues are desaturating during a shallow, slow ascent.

Messages:



4.5 Decompression information

No-stop time is displayed, if no decompression stops are necessary. The arrow *mostop* is visible. The figures indicate no-stop time in minutes.



Response: In order to prevent a decompression dive, you must ascend a few feet after this message.

•)) ALADIN dive time denth 47: נון 76 max. depth

•))`



It is dangerous and an unsafe diving practice to "push" the Aladin[®] Air or any other decompression tool to its limits. Avoid no-stop times of less than three minutes at any given depth.

Decompression values



On entering the decompression phase, the arrow **NO STOP** disappears. The arrow **DECOSTOP** appears. Right beside the arrow, the deepest decompression stage in feet is displayed. Beside the decompression depth, the decompression time of the displayed stage in minutes appears. The display <30ft 3:> means that a decompression stop of 3 minutes at a depth of 30ft 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 arrow **DECOSTOP** extinguishes and the arrow **NO STOP** reappears. The indication of time on the lower right shows the no-stop time again.

Messages:

WARNING	The decompression alarm is activated if the decompression stop is ignored. Arrow DECOSTOP begins flashing and an acoustic alarm is initiated. Due to the formation of microbubbles decompression can increase massively if a de-
(1)(1)(1)(1)(1)(1)(1)(1)(1)(1)(1)(1)(1)(compression stop is ignored. When the surface is reached during the decom- pression alarm, the arrow Decosion continues flashing, in order to point to the risk of a decompression accident. The SOS-mode is activated after 3 min- utes after the dive if corrective action is not taken. If the total (cumulative) duration of the decompression alarm is longer than a minute, it is entered in the logbook. Response: Descend to the prescribed decompression depth immediately!

III Diving with Aladin[®] Air

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Total time of ascent



As soon as decompression stops are necessary, Aladin[®] Air shows the total time of ascent. The time of ascent to the first decompression stage and all decompression stops are included.



The time of ascent is calculated on the basis of the prescribed ascent rate and a normal workload. Total time of ascent can be subject to change if the ascent rate is not ideal (100%) or with higher workload.

4.6 Tank pressure



Tank pressure is indicated in the lower display.



 The tank pressure displayed also serves the calculation of the Remaining bottom time (RBT) and the diver's performance.

Message:





 In case of increased air consumption, Aladin[®] Air displays a lung symbol in the lower display and an acoustic alarm occurs.
 Response: In order to prevent additional saturation,

reduce exertion and breathe more slowly.

4.7 Remaining bottom time RBT

RBT is the time left at the current depth until the point of time when the ascent **must** be started. The RBT is shown in the lower display graphically by a stylized hour-glass as well as in figures (minutes). The RBT is calculated on the basis of the current tank pressure, the temperature, and the dive data so far registered. The RBT is based on the assumption that the tank pressure should amount to at least 580 psi at the end of the dive. Alterations of this are possible (see page 78).







Correct calculation of RBT when using a reserve or "J"-type valve is possible only if the reserve function of the valve is in the open (down) position during the dive.



 The acoustic alarm on exceeding the RBT is suppressed at depths less than 23 ft if Aladin[®] Air is in the no-stop phase.

- If RBT drops below three minutes, an acoustic caution signal is activated the RBT-symbol A appears and the RBT-figure starts blinking.

WARNING	– After the last minute (RBT=0) an acoustic alarm is given every 4 seconds. T RBT-figure and the RBT-symbol Λ are blinking.	
	Response: Start ascent immediately.	

5.1 End of a dive

depth ALA	idin	dive time
		47:
93		• •:
max. depth	Ais	deco info

After reaching the surface, Aladin[®] Air switches into wait-mode automatically for five minutes. This is the time span necessary to recognize the end of the dive. The delay allows the diver to come to the surface for orientation and to resume the dive afterwards.

When the dive is closed after 5 minutes in wait-mode, it is entered into the logbook and Aladin[®] Air switches into surface-mode.

In surface-mode, Aladin® Air shows desaturation time and no fly time.

5.2 Desaturation time



When DESATURATION > appears; the Aladin® Air is in surface-mode. Desaturation time in hours and minutes is displayed next to that. Desaturation time is continually indicated until the next dive or until it reaches zero. The display is switched off to save energy three minutes after the last manipulation is made (surface-sleep-mode).



In some cases, desaturation times with the Aladin[®] Air are considerably longer than those of its predecessors. This is because the calculation model assumes reduced physical activity at the surface (therefore less nitrogen off gassing) and uses shorter half-times.

If desaturation time reaches zero, the "tissue" models of the Aladin® Air are desaturated and it switches into the sleep-mode.

WARNING

5.3 No fly time



The waiting period until the next flight is indicated as follows: Beside this indicator is the time in hours that should pass before a flight.

Next to that display the time in hours until it is considered appropriate to fly is displayed (because of recalibrated desaturation time).

Flying while the Aladin[®] Air displays "DO NOT FLY" may lead to serious injury or death from decompression sickness.

5.4 Warning of bubbles



Through repetitive dives microbubbles may accumulate in the lungs if the surface interval is not long enough. Ignoring decompression stops or an excessive ascent rate can also lead to bubbles in tissues. In order to reduce the risk of decompression sickness for future repetitive dives, the surface interval should be planned long enough to reduce the risk of decompression sickness. If Aladin® Air calculates that the formation of microbubbles may occur during the surface interval, it will advise a diver to extend the surface interval. If the display <Atn> (=attention) is visible instead of the depth during the surface interval (surface-mode), the diver should not undertake another dive. Through the extension of the interval the diver may prevent a high concentration of bubbles in the lungs during the planned dive and avoids a higher risk situation.



- If the dive has to be made during <Atn>-time, the <Atn> time of the following dive can increase considerably.
- If the dive is made in spite of the display <Atn>, the diver must cope with a clearly shorter no-stop time and an extension of decompression.

6 Diving in Mountain Lakes



Aladin[®] Air measures the atmospheric pressure even while in sleep-mode. If the computer detects a higher altitude, it switches into surface-mode automatically. Desaturation time indicated at this moment refers to adaptation time at this altitude. If diving starts within this adaptation time, Aladin[®] Air treats it as a repetitive dive, since the body still has a higher saturation.

The entire altitude range is divided into four sections which are influenced by barometric pressure. That is why the defined altitude sections overlap on their fringes. The altitude section is indicated at the surface, in the logbook and in the dive planner by stylized mountains, if a mountain lake altitude is reached. Sea level to an altitude of approximately 3000 ft is not indicated. In the following, you can see the approximate altitude ranges of the four sections:



6 Diving in Mountain Lakes

In order to assure optimal decompression even at higher altitudes, the 10 ft decompression stage is divided into a 13 ft stage and a 7 ft stage (the pescribed decompression depths are, in sequence, 7 ft, 13 ft, 20 ft, 30 ft).



Aladin[®] Air can be used as decompression computer in case of an emergency up to an altitude of 13123 ft. If atmospheric pressure is below 8.99 psi (altitude higher than 13123 ft above sea level), no decompression information is displayed. Indication of the RBT is also impossible since decompression data are necessary for its calculation (tank pressure is still displayed, of course). Dive-planmode can no longer be started, since no decompression information is available. Beside the display of the altitude section 3, <HI> (=high) appears, telling the diver that he will not get any decompression information for the dive.



Even the smallest differences in the pressure receptors can cause an indication of different altitude sections of two dive computers at the same altitude on the fringes of the altitude ranges. These differences are not meaningful and do not interfere with the functions of Aladin[®] Air. But if an altitude section is displayed at sea level or the altitude read outs of two computers differ by more than one altitude section (e.g. section 2 instead of 0), there may be a defect of the computer. In this case, send your computer back to your retailer for checking.



Diving while at altitude can considerably increase the risk of decompression sickness. Do not undertake high altitude diving without being specifically trained in the special techniques of such diving.

IV DIVING AT REDUCED RISK WITH ALADIN® AIR

- 1 Diving at Reduced Risk with Aladin[®] Air 1.1 Diving at reduced risk _____ 54 1.2 Minimizing risk on repetitive dives _____ 56 1.3 Response in increased risk situations _____ 57

1.1 Diving at reduced risk

Analyzing the most recent results of decompression research and statistical analysis of diving accidents involving decompression sickness allows for the creation of guidelines for diving at reduced risk for decompression sickness. Aladin[®] Air recognizes and reacts "intelligently" to certain risk situations. Of course, it is much better that each individual diver avoid these higher risk situations altogether. Yet if a decompression accident does occur, the optional MemoMouse and the *DataTrak* software allows the analysis of the dive profile and certain risk parameters to provide for more complete information for treatment purposes. The following are highly recommended suggestions for reducing the risk of decompression sickness.



Neither the Aladin[®] Air nor any other diving computer or decompression table can guarantee that decompression sickness will not happen even if the computer or table is used correctly and all of the following precautions are followed.

- In accordance with the recommended maximum diving limit, do not dive deeper than 130 feet.
- Do not use the Aladin[®] Air for planned decompression diving. The decompression alogrithm contained in the Aladin[®] Air should be used only for emergency or unintended decompression.
- On all dives with the Aladin[®] Air, make a safety stop for three to five minutes within the ten to thirty feet zone.
- Never use the Aladin[®] Air for repetitive, "square" dives deeper than 60 feet. A square dive is performed for its duration at a uniform depth.

- You should not dive for a period of twenty-four hours before activating the Aladin[®] Air to use it to plan or control your diving.
- If the Aladin® Air fails at any time during the dive, the dive must be terminated, and appropriate surfacing
 procedures should be initiated immediately.
- On any given dive, both divers in a buddy pair must follow the most conservative dive computer for that particular dive.
- All divers using dive computers to plan dives and indicate or determine decompression status must use their own diving computer.
- If your diving cylinder is equipped with a reserve or "J"-type valve, make certain that the reserve function is in an open (down) position. Failure to keep the reserve open will result in the improper calculation of dive data depending on tank pressure.
- The Aladin[®] Air is designed for dives made with compressed air only. Do not use the Aladin[®] Air for dives
- Always make the deepest dive of the day first when repetitive dives are planned, and for each successive dive make sure that the deepest portion of that dive is done at the beginning of the dive.

made with nitrox or other mixed gases.

55

- 1 Diving at Reduced Risk with Aladin[®] Air
- You MUST follow the ascent rates as indicated by the Aladin[®] Air and if the computer should fail for any reason, you must ascend at a rate of no greater than 60 feet per minute.
- You MUST be familiar with all signs and symptoms of decompression sickness before using the Aladin[®] Air! Seek IMMEDIATE treatment for decompression sickness should any of these signs or symptoms occur after a dive! There is a direct correlation between the efficacy of treatment and the delay between the onset of symptoms and the treatment for decompression sickness.
- Always observe the optical and acoustic alarm signals of the Aladin[®] Air. Avoid situations of increased risk which are marked with a warning sign in this operating manual.
- Never dive the Aladin[®] Air to the limit. Neither the Aladin[®] Air nor any other diving computer or decompression table should be pushed to its limit. Give yourself a margin of safety by always leaving at least a few minutes in the "no-stop" box before making your ascent.
- Avoid repeated ascents and descents (yo-yo diving) while using the Aladin[®] Air.

1.2 Minimizing risk on repetitive dives

With consecutive repetitive dives, there will be excess nitrogen in the body due to the accumulation of nitrogen on the preceding dive. Depending on the length of the surface interval, there could even be gaseous nitrogen (microbubbles) in your body. This accumulation of both soluble as well as potentially gaseous nitrogen in the body can greatly increase the risk of decompression sickness on subsequent dives. That risk can be minimized.

- 1 Diving at Reduced Risk with Aladin[®] Air
- Always make your first dive the deepest dive of the day.
- Always make the deepest descent of each given dive on a particular day at the beginning of that dive.
- Never make "square" dive profiles of 60 feet or greater as repetitive dives.
- Avoid yo-yo diving during repetitive dives.
- Plan for a minimum surface interval of three to four hours.
- Do not attempt to repetitive dive if the <Atn> is visible on the display.
- Take a day off from diving every three or four days.

1.3 Response in increased risk situations

If the dive includes an increased risk situation, Aladin[®] Air reacts automatically to warn the diver of this risk and to decrease RBT or increase required decompression, as the case may be. A change of decompression may be indicated to minimize the risk. The diver can further reduce the risk through his conservative diving practices on the next dive and at the same time prevent long decompression stops. A few examples on the following pages:

Situation: The diver ascends too rapidly:

Reaction of computer: The model calculates the formation of bubbles due to the excessively rapid ascent. No-stop time is shortened or a longer (and eventually at greater depth) decompression prescription is displayed in order to assure increased decompression.

Recommended response of the diver

During the dive: - Observe the new decompression prescription shown by Aladin® Air.

After the dive:

- Watch out for symptoms of arterial gas embolism and decompression sickness.
 - Seak immediate medical attention at a recompression chamber should any signs or symptoms of decompression sickness appear.
 - Before the next dive, plan a sufficiently long interval (display <Atn> should disappear).



An exessive ascent rate can lead to serious injury or death from decompression sickness.



Failure to seek IMMEDIATE treatment for any signs or symptoms of decompression sickness after a dive may result in serious injury or death.

Situation The diver disregards the prescribed decompression depth.

Reaction of computer: The model calculates the formation of bubbles due to ignoring decompression. A longer (and eventually at greater depth) decompression is displayed in order to assure sufficient time for desaturation

Recommended response of the diver

During the dive: Descend to the prescribed decompression depth at once. Do not descend to greater depths during the dive. Observe the decompression prescribed by Aladin[®] Air. After the dive: Watch out for symptoms of arterial gas embolism and decompression sickness. Before the next dive, plan a sufficiently long interval (display <Atn> should _ disappear). Failure to comply with all decompression information on the Aladin® Air may VARNING

result in serious injury or death due to decompression sickness.

There is a risk of decompression sickness on every dive even if all precautions described in this manual are taken.

1 Diving at Reduced	Risk with Aladin [®] Air
Situation:	The diver is physically exerting himself or herself, (e.g. swimming against the current).
Reaction of computer:	A shorter RBT or an extension of decompression time.
Recommended response During the dive:	 of the diver Avoid further physical exertion if possible. Relax. Frequently check the RBT and decompression information on your Aladin[®] Air. RBT may decrease considerably. Decompression time may increase considerably.
After the dive:	 Refrain from heightened physical exertion on your next dive. Increase your surface interval.

Situation:	It is very unlikely to have a surface interval long enough to clear the <atn> prior to the next dive during an organized dive trip from a boat. This previous buildup of nitrogen must be taken into consideration for the next dive.</atn>	
Reaction of computer:	Aladin [®] Air calculates a shorter no-stop time or decompression prescription to reduce the risk of decompression sickness.	

Recommended response of the diver

During the dive: Dive conservatively on all repetitive dives. Limit your maximum depth to no more than 75 feet at the very beginning of the dive, do not allow the RBT to go below three minutes, and make a very slow ascent.

After the dive: Before the next dive, plan a sufficiently long surface interval (<Atn> display should disappear).

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V LOGBOOK

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5	Output on PC	(68

V

1 Survey

Aladin® Air features a logbook with the last 19 dives. A dive is only entered in the logbook if dive time is longer than 2 minutes. Displayed information of the dive:





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

2 Selection and Activation



- 1 The logbook is selected by bridging contacts B and + in ready- or surface-mode. Indication appears. If Aladin® Air has been in surface-mode before, the surface interval appears as well. You go back into ready- or surface-mode by B and –.
- 2 In order to activate the logbook, bridge contacts B and E. The most recent dive is displayed (DIVE 1).



V
3 Selection of Dive



- Bridge contacts B and + to get the information of the dive preceding the most recent one. Display <DIVE 2> appears.
- 2 On every further bridging B and + the logbook jumps to the next older dive (DIVE 3).
- 3 On constant bridging of the contacts all dives are displayed successively.
- 4 Bridging contacts B and allows switching back from older dives to more recent ones.



V Logbook

4 Leaving the Logbook-Mode



Touch contacts B and E.

Aladin[®] Air switches back into ready- or surface-mode. This also happens 3 minutes after activating logbookmode.

5 Output on PC

It is possible to transfer the data of the last 37 dives from your dive computer to a storage extension and from there to a personal computer. The logbook software *DataTrak* manages your dives.

In addition, dive profiles of the last dives can be analysed and represented graphically up to a maximum of 200 minutes in increments of 20 seconds.



VI DIVE PLANNER

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VI

1 Survey

The Aladin[®] Air is equipped with a dive planner which allows the planning of no-stop dives and decompression dives with freely determinable surface intervals. The water temperature of the most recent dive and eventual altitude sections \square are incorporated in the calculation.



Presetting the surface interval (only during desaturation)





Planning of decompression dives

decompression divel	WARNING	Planned decompression dives violate the responsible diving practice standards of every major diving organization. They are not to be attempted by recreational or sport scuba divers. Only professional divers with extensive experience, train- ing and the appropriate equipment for decompression diving (including the presence of an on board recompression chamber) should attempt to plan a decompression divel
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2 Selection and Activation from Ready-Mode

1



- From ready-mode, you switch into the diveplan input stage with contacts B and -.
- 2 The display shows _____. You return to ready-mode by B and +.

- 3 Contacts B and E afterwards activate the planning mode.
- 4 The display shows no-stop times for increasing depths (scrolling no-stop times, see page 73, planning of a no-stop dive).

VI

3 Selection and Activation from Surface-Mode



- 1 From surface-mode, you switch into the diveplan input stage by B and –.
- 2 The display shows _____. You return to surface mode by B and +.
- 3 After confirming by B and E, the display shows <Add>, <Int> and the interval (flashing). Aladin[®] Air expects your input for the duration of the dive interval.

- 4a If no surface interval is to be entered, (diving at the present moment), confirm this with contacts B and E, and you switch into no-stop planning (page 73).
- with contacts B and +. B and – shorten the interval.



5 You confirm the new surface interval and get into nostop planning (page 73).

4b You can extend the interval

4 Planning a No-Stop Dive



After confirming the surface interval (if possible), no-stop times are displayed in 10-ft-increments. The process starts with the plan depth of the no-stop time which must be shorter than 99 minutes. The no-stop time for every 10-ft-increment is displayed for about 3 seconds (scrolling no-stop times).



Repetitive dives usually cause more microbubbles in the lungs than first dives if the surface interval is not long enough. Too rapid an ascent and/or disregarding decompression instructions can lead to microbubbles. By calculating the formation of bubbles, Aladin® Air is able to advise the diver to extend the surface interval if necessary. If <Atn> is displayed instead of the depth in addition to the nostop times, the diver should plan an extension of the interval if possible.



 By repeated recallings of the diveplan with varying surface intervals the minimum interval can be determined.

4 Planning a No-Stop Dive

WARNING	 When diving in spite of the display <atn>, a clear shortening of the no-stop time and an extension of decompression has to be expected.</atn>
	 If a dive is made during <atn> -time, the <atn>-time following the dive can increase considerably.</atn></atn>

WARNING

Marking a repetitive dive when <Atn> is displayed will increase your risk of serious injury or death from decompression sickness!

5 Planning a Decompression Dive





Planned decompression dives violate the responsible diving practice standards of every major diving organization. They are not to be attempted by recreational or sport scuba divers.

Only professional divers with extensive experience, training an the appropriate equipment for decompression diving (including the presence of an on board recompression chamber) should attempt to plan a decompression dive!

- In order to plan a dive that requires decompression, wait until the scrolling nostop time shows the desired depth.
- By means of contacts B and E you can switch into decompression planning. Dive time is now one minute longer than no-stop time, and the appertaining decompression information appears.
- 3 <Add> demands that you set the time. This is done with contacts B and +, B VI and – respectively. As soon as the contacts are no longer bridged, Aladin® Air calculates the decompression information for this set time. This calculation takes some time



If you wish to plan a dive requiring decompression at another depth, switch from decompression planning to no-stop planning by means of B and E. Aladin[®] Air again shows the scrolling no-stop times. Now you can switch between no-stop planning and decompression planning at will with contacts B and F

6 Leaving the Dive-Plan-Mode



If the contacts B and E are touched for about 3 seconds, Aladin[®] Air falls back into ready- or surface-mode. This also occurs three minutes after the activation of the diveplan-mode.



On a short touch of contacts B and E the Aladin[®] Air switches back to the scrolling no-stop times.

In order to completely leave the diveplan-mode, B and E must be continually bridged until two acoustic bleeps have occured.

or after 3 minutes



/ARNING

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.

VII MEMOMOUSE AND DATATRAK/DATATALK

- 1 Communication between dive computer and personal computer
- 1.1 Personal programming of the dive computer
 78

 1.2 Analysis and storage of real dives
 79

VII

1 Communication between dive computer and personal computer

The Aladin[®] Air is able to communicate with a personal computer. The connection is established by contact sensors. The storage extension MemoMouse and a software package containing the applications *DataTrak* and *DataTalk* are available on the market. You can alter a number of basic settings of your dive computer by means of *DataTalk*; *DataTrak* manages your dive data.

1.1 Personal programming of the dive computer

Several parameters can be set individually by the user, e.g.:

- The physical units of water depth and tank pressure can be selected (metric/American).
- The calculation of Remaining Bottom Time (RBT) assumes a certain rest of tank pressure at the surface (see page 50, III Diving with Aladin[®] Air). This rest pressure can be adjusted from 435 to 1160 psi.
- The attention message acoustic alarm can be switched off if desired (see pages. 32,33). The actual alarms shown on the face of the Aladin[®] Air are not affected by the acoustic alarm being switched off. These actual alarms include not having enough air for a safe ascent, ignoring decompression stops, or making too rapid an ascent.
- The sensitivity of the message "out of breath" can be altered.



If you switch off the acoustic alarm of the Aladin[®] Air you must pay even more careful attention to the actual alarms on the face of the Aladin[®] Air. Failure to follow all alarms whether audible or not may lead to serious injury or death due to decompression sickness, and/or drowning.

1 Communication between dive computer and personal computer

1.2 Analysis and storage of real dives

The last approx. 200 minutes of dive time are stored by the dive computer in increments of 20 seconds and can be transferred to MemoMouse and from there to the PC. The *DataTrak* software allows the representation and analysis of the profiles. Thereby, all relevant data are examined and displayed for every point in time. A lot of additional information such as water temperature, air consumption etc. can also be viewed.

The PC program enables the diver to keep a personal logbook. Apart from the 200 minutes of diving, 37 dives are registered in the form of the logbook function of Aladin[®] Air. If the data from Aladin[®] Air are transferred periodically, all dives are stored as profiles or in this short form. Time and date of the dives are automatically registered on the data transfer and the dive can be printed out on a page for the diver's logbook.

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VIII TROUBLE SHOOTING

1 Trouble Shooting

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1 Trouble Shooting

symptom	possible reason(s)	response			
No indication of tank pressure data.	Pressure sensor of dive computer is out of order.	Take the dive computer to your diving retailer.			
Displayed tank pressure does not correspond to pressure measured by a manometer (depth gau- ge).	By compensating the temperature, the pressure displayed is valid at 68°F. If air- or water-temperature differ from this value, a difference to the value given by a manometer is possible. Manometer/depth gauge is not ac- curate (temperature 68°F).	Make comparison at 68°F or check the tank pressure compensated to the at- mospheric pressure for comparison (see appendix, chapter IX page 89). Measure tank pressure with another manometer/depth gauge (at 68°F).			
Altitude section does not correspond to the current altitude.	Atmospheric pressure is especially high or low. Air pressure measured by the compu-	Check barometric information.			
	ter is wrong.	(only if altitude section is wrong by more than one section, see chapter III page 51).			

1 Trouble Shooting

symptom	possible reason(s)	response
Desaturation time and/or no fly time are very long.	Slow tissue and/or little workload at the surface.	Review chapter III 5 very carefully.
	Too many repetitive dives, yo-yo-div- ing, square profile repetitive dives or disregarding decompression stops. Dissolved nitrogen and/or microbub- bles must be off gassed first.	Plan sufficiently long surface interval and dives at lower risk.
<atn> appears in place of the diving depth on the display.</atn>	Too many repetitive dives, yo-yo-div- ing, square profile repetitive dives or disregarding decompression stops. Dissolved nitrogen and/or microbub- bles must be off gassed first.	Plan sufficiently long surface interval and dives at lower risk. Review chapters III 5 and IV very carefully.
An unexpected decom- pression stop appears in place of no-stop time or decompression increases in leaps.	Too rapid an ascent or ignoring de- compression stops have caused a large number of microbubbles, which leads to an attention message (warning of bubbles).	Plan sufficiently long surface interval and dives at lower risk. Review chapters III 5 and IV very carefully.

1 Trouble Shooting

symptom	possible reason(s)	response
Attention messages are not given acoustically.	The acoustic signal of the attention messages is switched off.	Reactivate these attention messages by means of the PC-software <i>DataTalk</i> .
Remaining bottom time (RBT) always very short.	Rest pressure is set too high (standard setting 580 psi). Reserve valve closed.	Alter the rest pressure setting by means of the PC-software <i>DataTalk</i> . Always open reserve valve when using Aladin [®] Air.

IX APPENDIX

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1 Maintenance of Aladin[®] Air Dive Computer

Your Aladin[®] Air 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. To avoid possible problems with your Aladin[®] Air, the following recommendations will help assure that it will give you years of trouble free service:

- Avoid dropping or jarring your Aladin® Air.
- Do not allow your Aladin[®] Air to be exposed to direct, intense sunlight.
- Rinse your Aladin[®] Air thoroughly with fresh water after each dive.
- Do not store your Aladin[®] Air in an air-tight area; make sure there is free ventilation.
- If there are problems with operating the contacts, the surface of your Aladin[®]
 Air housing can be treated with silicone grease. Use soapy water to clean the
 Aladin[®] Air before using silicone grease and dry it thoroughly.

1 Maintenance of Aladin[®] Air Dive Computer



 There are borings in two of the contacts for the reception of the plug of the connecting cable to MemoMouse and personal computer. Free these borings from dirt with a needle if necessary.

WARNING	Take the dive computer to an authorized retailer in order to change the batter- ies. The actual change of the batteries is made at the manufacturer or the im- porter. The computer is checked for its technical functioning at the same time. Do not attempt to have the batteries changed by anyone other than an author- ized dealer.
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2 Technical Information

Operating altitude:	with decompression information: without decompression information	sea level up to approx. 13300 ft unlimited						
Operating depth:	no limitation in the permitted range of diving with compressed air							
Clock:	quartz timer, display up to 199 minutes							
Operating temperature:	14 °F to 122 °F							
Power supply:								
Life of the battery:	(standard values) For an average diving time of 60 minutes and a decompression time of 20 hours after every dive:							
	Number of dives per year	Live (years)						
	50	7						
	100	5,5						
	150	4						
	300	2,5						

3 Conversion of Tank Pressure

Tank pressure indicated in the lower display may diverge from the information given by a manometer/depth gauge. Aladin[®] Air displays pressure always converted to a temperature of 68° F, whereas the mechanical depth gauge displays the actual pressure influenced by temperature.

The figure on the right allows you to compare the information given by a conventional depth gauge and by Aladin[®] Air at six different temperatures.



4 Warranty

Please pay attention to the following remarks on warranty claims:

- 4.1 Recognition of
warrantyThe warranty only covers dive computers which have been provably bought from
an authorized retailer or from the manufacturer.
- **4.2 Scope of the** The manufacturer will repair all defects which are provably retraceable to defects of material or faults in production. The warranty covers the repair of the dive computer free of charge, the replacement of faulty parts or the entire dive computer, respectively.

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 authorized by the manufacturer. This especially concerns the change of batteries for the dive computer
- pressure tests which do not take place in water
- diving accidents

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4 Warranty

4.3 Warranty period and claim

The warranty is given for a period of 12 months.

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 authorized retailer or an authorized servicing point.

The manufacturer does not have to accept extensions of the warranty granted by national importers.

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