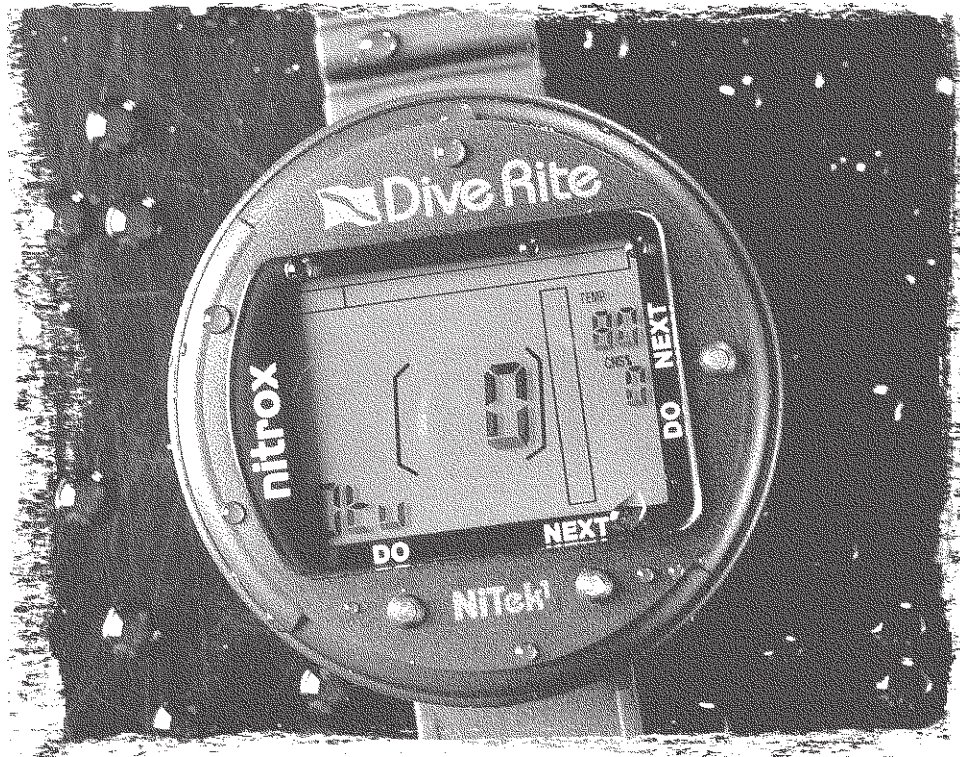


NiTek 1 Owners Manual

NiTek® is a registered trademark of Lamartek, Inc., dba Dive Rite



WARNING

Read this manual, *in its entirety*, before using your NiTek Plus. Failure to follow the instructions it gives, or to heed the warnings it provides, can lead to *serious personal injury* or *death*.



Dive Rite

NiTek 1 Limited Warranty

- ▶ Dive Rite will—*at its sole discretion*—repair or replace NiTek 1 components proved to be damaged by faulty manufacture or material, at no cost, for a period of up to one year (365 days) from the date of purchase.
- ▶ This warranty applies only to the original retail purchaser. It does not cover commercial or rental use, nor does it extend to units purchased from other than an authorized Dive Rite dealer.
- ▶ This warranty specifically excludes battery depletion or other conditions resulting from misuse, negligence, alteration, accident or unauthorized repair.
- ▶ To make a claim under this warranty, the owner must have either completed and returned the Warranty Registration card at the time of purchase, or registered his/her warranty using Dive Rite's website (*www.diverite.com*). He or she must then return the damaged items to Dive Rite, along with a copy of the original purchase invoice or receipt. No warranty service will be performed for other than registered owners.
- ▶ This warranty becomes void if NiTek 1 components are damaged by anything other than normal recreational diving use, or if they have been serviced or repaired by other than authorized Dive Rite dealers.
- ▶ Repairs made under this warranty will not extend the warranty period.
- ▶ All further claims, especially for damage after diving accidents, are excluded from coverage under this warranty.
- ▶ Dive Rite has no obligation to honor any extension of this warranty.
- ▶ This warranty is in lieu of all other warranties, express or implied. No other person or representative is authorized to assume for Dive Rite any other liability in connection with the sale of this product.

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Read this manual in its entirety and completely understand how the NiTek 1 computer works before using it. The information contained within this manual is important to your personal safety. Improper use, or misuse, of this product can cause serious injury or death.

Introduction

The NiTek 1 has been designed to be easy to use and to offer you the quality and features that will help make your time underwater as enjoyable as possible. The NiTek 1 is an electronic dive instrument designed for use in Nitrox diving. It provides information to the diver by monitoring the dive parameters and calculating dive tables along with other important information.

- Two different dive tables: Normal (0) or Short (1) which can be selected based on the physical conditions of the diver, water conditions and recent dive history.
- LCD light.
- Underwater operation switch for the LCD light and beeps option.
- Complete dive simulation program.

The unique features that the NiTek 1 computer offers in addition to the standard information delivered by most computers are:

- Adjustable fraction of oxygen (FO_2) from 21 percent to 50 percent in one-percent increments.
- Adjustable oxygen partial pressure from 1.2 to 1.6 atmospheres.
- Modified Bühlmann table model with Equivalent Air Depth (EAD) calculation for Nitrox (EAN calculations by Dr. Bill Hamilton, Hamilton Research Inc.).
- CNS clock during diving both in percentage digits and graphical display bar.
- Current PO_2 display during diving.
- OTU monitor.
- Water salinity correction factor for calibration.

This owner's manual includes detailed instructions and helpful diagrams to teach you how to properly use the NiTek 1. It is crucial that you read this manual in its entirety and completely understand the features and functions before you use the NiTek 1.

For Your Safety



All divers must understand that there is no procedure or dive computer, even when used according to the manufacturer's instructions, that will totally prevent the possibility of decompression sickness. *Any diving or flying after diving involves some risk of getting some form of decompression sickness. You must be willing to accept this risk when you dive.*

No dive computer is a substitute for proper training and common sense. A dive computer should never be relied upon as the sole means of planning and monitoring a dive. Use back-up equipment and check it regularly. The purpose of this manual is to teach you how to use the NiTek 1 dive computer. It is your responsibility to know, understand and follow safe diving principles. Read and understand this manual in its entirety before using the NiTek 1.

Nitrox Safety Precautions

Only certified Nitrox (EAN) divers should use the Nitrox features of this Nitrox diving computer. You need to fully read and understand the operation principles of the NiTek 1.

- You need to understand the working principles of dive tables and their use, along with EAD calculation from dive tables.
- You need to understand and be able to calculate CNS oxygen toxicity effects.
- You need to understand and be able to calculate whole body or pulmonary oxygen toxicity effects (OTUs).
- You need to understand oxygen partial pressure limits, and your personal limits in relation to oxygen partial pressure limits. *Exceeding a partial pressure of 1.4 atmospheres can cause serious injury or death.*
- Know and remember the signs, symptoms, predisposing factors, prevention measures and treatment of CNS toxicity (oxygen toxicity). Constantly monitor yourself and your dive buddy for these signs and symptoms.
- Always take into account the predisposing factors to CNS toxicity.
- Know and remember the signs, symptoms, predisposing factors, prevention measures and treatment of pulmonary oxygen toxicity. Constantly monitor yourself and your dive buddy for these signs and symptoms.

- Always dive with a dive plan that excludes the possibility of pulmonary toxicity.
- Understand hypoxia and know how to avoid it.
- The NiTek 1 does not free you from making complete dive plans with table calculations for Nitrox diving.
- The NiTek 1 does not prevent you from taking a gas mix deeper than what is safe for that mix - you have to plan the mix and the dive.
- The NiTek 1 does not prevent you from getting injured with miscalculated oxygen dosage for a dive. You have to plan the oxygen dosage prior to diving.
- The NiTek 1 does not prevent you from getting injured due to inaccurate gas analysis.

Multilevel Safety Precautions

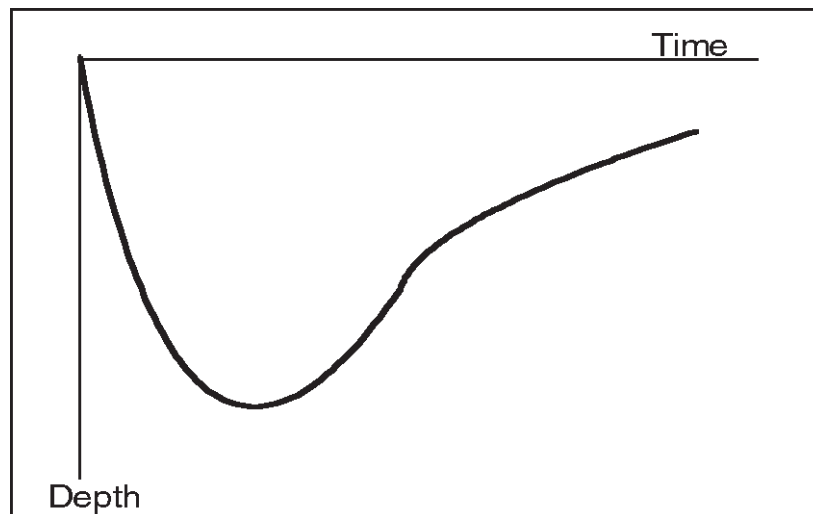


Figure 1 *The only dive profile that is considered safe is one where the deepest portion of the dive is made first and the diver then gradually works his way to shallower water avoiding additional descents.*

Reverse profiles (maximum depth reached shortly before surfacing), you-you profiles (repeated descents and ascents), consecutive deep dives and repetitive decompression dives, should all be avoided.

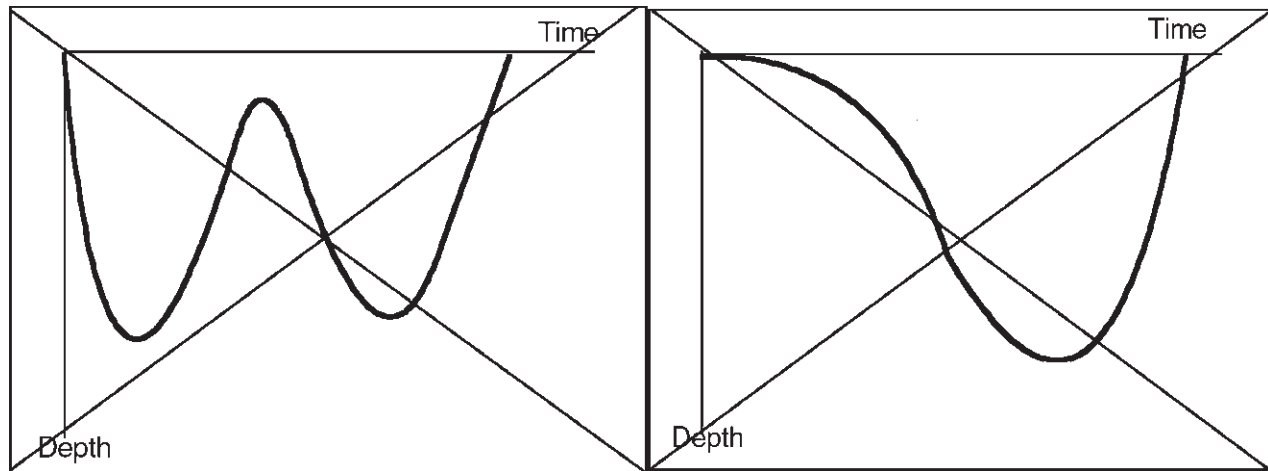


Figure 2 *These diagrams give example of incorrect profiles.*

Things to Consider Prior to Diving With Any Computer

1. Read the instructions and understand the operation of the computer thoroughly.
2. Do not dive for a minimum of 24 hours before using a dive computer to control your diving. This will allow your body to eliminate any nitrogen gained from previous dives. Not doing so will invalidate the data provided by the computer.
3. Make certain the computer is functioning properly.
4. Do not share a dive computer while diving.
5. Follow the most conservative computer when diving in pairs.
6. If your dive computer malfunctions do not dive with a dive computer for a minimum of 24 hours.
7. Always plan your dive and dive your plan. Prior to initiating each dive, review the following with your buddy and any others with whom you are diving: maximum depth, profile, return time for sufficient air, safety stop, signals between buddies.
8. Establish a back-up ascent procedure should the computer fail or if it seems that the data presented by the computer is erroneous.
9. Check the computer for no stop time for planned maximum depth. No-stop dives should always include a planned safety stop at between 10 and 20 feet for three to five minutes.
10. Pre-determine a point at which the dive will be terminated due to minimum air supply. This point should consider sufficient air for a controlled ascent (including safety stops), return to the shore/dive vessel and exit from the water with some amount of air remaining.
11. Understand factors that may effect your ability to perform mentally and physically under potentially demanding and stressful conditions. These factors may include temperature, exhaustion, dehydration, age, physical condition, etc.

12. Never dive under the influence of alcohol or drugs. Even some over-the-counter drugs may have side effects incompatible with safe diving.
13. After exhaustive travel take at least one day off before diving. Be sure to drink plenty of non-alcoholic, non-caffeinated beverages.
14. Learn and remember the signs and symptoms of decompression illness. Report any signs and/or symptoms (or anything out of the ordinary) promptly for rapid and effective evaluation and possible treatment. Rapid reporting of decompression illness may enhance the likelihood of symptom resolution.

If you have any questions regarding your fitness to dive, drug interaction in the underwater environment or the signs/symptoms of decompression illness call the Divers Alert Network (DAN) information line at (919) 684-2948 (9:00 to 5:00 Eastern Time, Monday through Friday). For diving emergencies, call (919) 684-8111.

Things to Consider While Diving With a Computer

1. Check that the computer was activated prior to entering the water and monitor its performance throughout the dive. If it appears to be functioning improperly, abort the dive and follow predetermined ascent procedures.
2. If you and your buddy are using the same model computer, compare your display with your buddy's while underwater.
3. Frequently check for no-decompression time.
4. Frequently check your air supply and communicate that information to your buddy.
5. Make the deepest portion of the dive first and work your way up to shallower water towards the end of your dive.
6. Avoid repeated ascents and descents ('yo-yo' diving) even in shallow water.
7. If your computer, or your buddy's computer, malfunctions, terminate the dive and initiate predetermined ascent procedures immediately.

Things to Consider While Ascending

1. Start the ascent according to the most conservative dive profile.
2. Do not exceed the ascent rate defined on the computer.
3. Always do safety stops.

Things to Consider When Repetitive Diving

1. Do the deepest dive of the day first. All subsequent dives should be shallower.

2. Data provided by DAN indicates an increased risk of decompression illness on repetitive dives deeper than 80 feet.
3. If you have violated any of your computer's parameters do not dive for a minimum of 24 hours.
4. Avoid repetitive dives if you have any factors that may contribute to decompression illness (exhaustion, dehydration, poor physical condition, fatigue, etc.)

Things to Consider After Diving

1. Be sure to follow all rules and regulations regarding flying after diving.

NiTek 1 Overview

Features

The NiTek 1 provides the following information to help you control your dive:

- Dive time.
- Depth.
- Maximum depth
- CNS percent.
- Current PO_2 .
- OTU counter.
- Dive number.
- No stop time (time remaining before a decompression stop is required).
- Total ascent time (if you are in a decompression situation).
- Surface time.
- Desaturation time.

The NiTek 1 gives the following warnings:

- PO_2 limit violation.
- CNS percent violation.
- Ascent rate.
- Start ascent (no-decompression limit has been reached).
- Decompression dive is being entered.
- Move to stop depth (decompression stop ceiling has been violated).
- Battery low.

The NiTek 1 gives the diver choices:

- Fraction of oxygen FO_2 setting.
- Oxygen partial pressure (PO_2) limit setting.

- Dive tables (conservative or normal).
- Standard or metric scale.
- Altitude group.

Additional features:

- Dive profile memory.
- Dive planning mode allows you to scroll through the No-Decompression Limits.
- PC upload capability.
- Battery can be replaced by the user without memory loss in profile memory.
- Underwater operable switch for illuminated LCD.

LCD Displays

The displays on the LCD screen will change according to the information being delivered. To protect the LCD from scratching you should apply one of the protective sheets that come with each unit, to the LCD surface. It is a removable sticker, that can be replaced if it wears out.

The screen examples in the manual are shown in metric, but the computer can display either metric or imperial units of measurement. The diagrams below show how the screen will appear during different aspects of the dive.

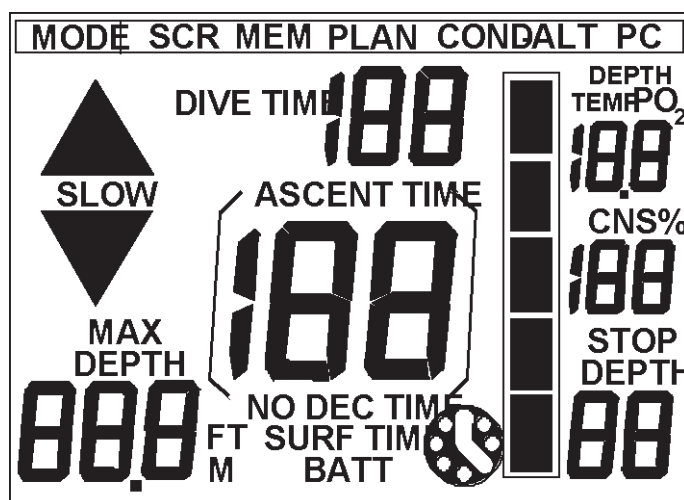


Figure 3: Start Up *All segments light for five to ten seconds showing unit self test and adjusting to ambient pressure.*

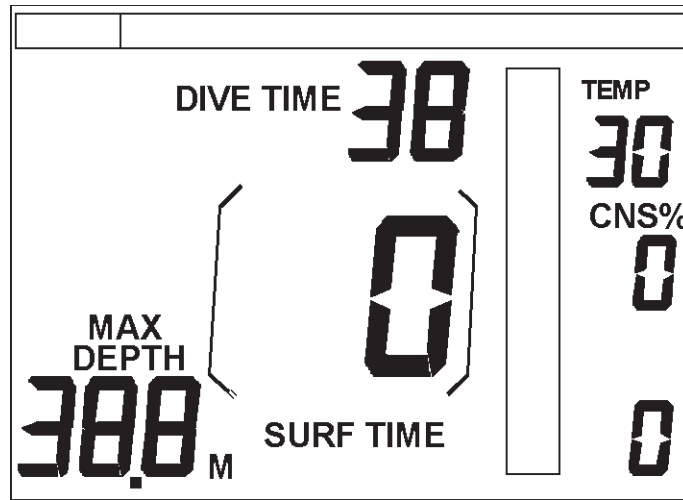


Figure 4: Before Entering the Water Computer shows Surface Time (time from start-up), current PO₂ or temperature, whichever was chosen, or revolving. Also displayed are CNS percent and last dive info.

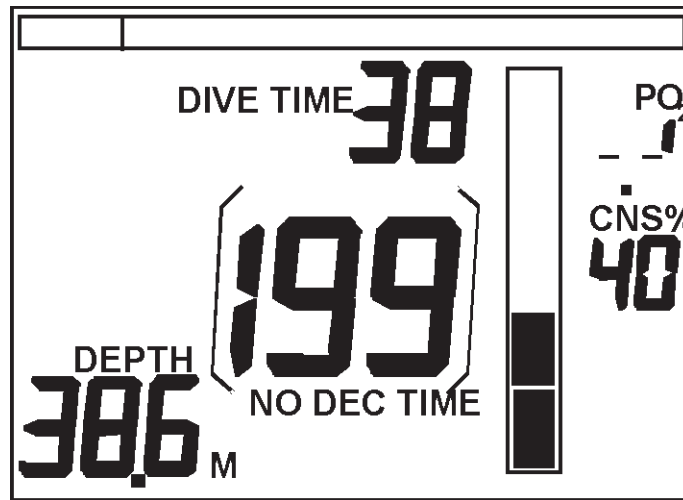


Figure 5: During the Dive Computer shows Dive time 38 minutes, Depth 38.6 meters, No-Decompression time left 199 minutes, CNS of 40 percent. Vertical bar indicates inert gas exposure.

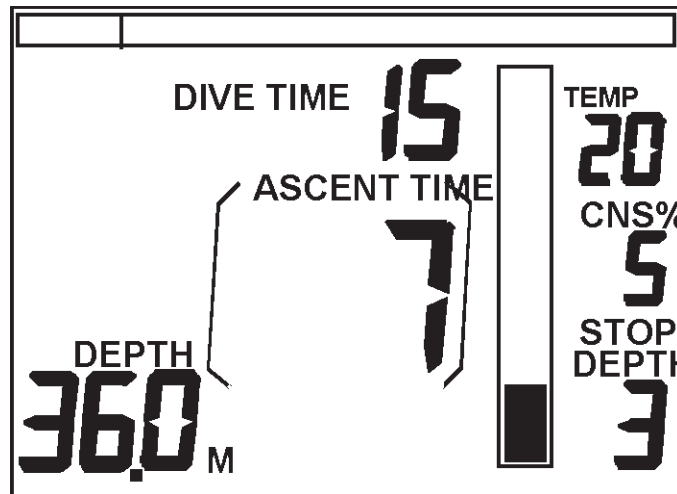


Figure 6: During Decompression Computer shows: Dive time 15 minutes; depth 36 meters, water temperature 20 degrees; ascent time to surface 7 minutes with (first) stop at 3 meters' CNS percent 5.

During Surface Interval the NiTek 1 will scroll between three different displays: Surface Display; Nitrox Features Display; and, Desaturation Display.

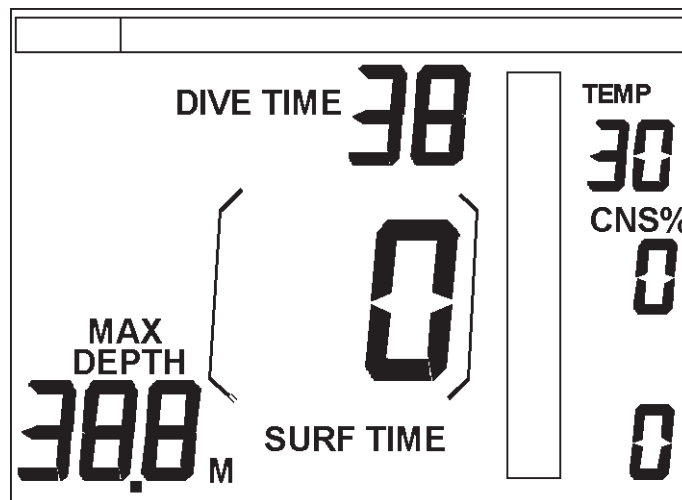


Figure 7: Surface Display During surface interval, the computer shows: Surface Time 0 hours, 0 minutes (from last dive), temperature 30, last dive time 38 minutes, max depth 38.8 meters, CNS percent 0.

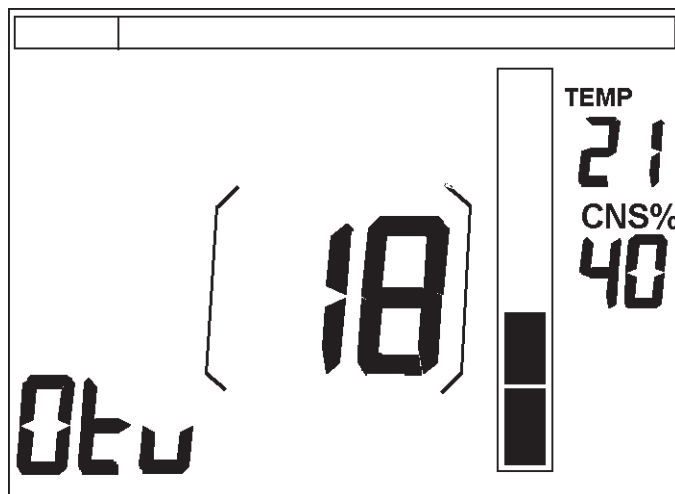


Figure 8: Nitrox Features Display Shows current CNS percent OTUs. Multiply the number show by ten to obtain actual OTUs. The computer will update the CNS percentage, also at surface. CNS clock half time is 60 minutes.



Figure 9: Desaturation Time Display The third and last surface display of the NiTek 1 is the desaturation time display, that gives the diver the time to desaturate, in hours and minutes. The NiTek 1 desaturation time is calculated to normal sea level pressure plus pressure equal to one half foot of sea water. The desaturation time can also be considered as do-not fly time.

Dive Tables

The NiTek 1 uses a modified Bühlmann type dive table calculation model, with eight tissue groups, and equivalent air depth calculation for Nitrox. Tissue half times are:

Tissue Group	Half Time (minutes)
1	5
2	11
3	17
4	24
5	61
6	125
7	271
8	480

Dive table comparison with no decompression stop time:

Depth (Feet):	40	50	60	70	80	90	100	110	120	130	140	150
Depth (Meters):	12	15	18	21	24	27	30	33	36	39	42	45

NiTek 1 Air NDLs

Normal Table (0):	130	85	54	41	31	24	19	13	10	9	7	6
Short Table (1):	98	60	43	31	24	18	12	10	8	7	6	5
USN Table:	200	100	60	50	40	30	25	20	15	10	10	5

NiTek 1 Nitrox NDLs

NiTek 1 EAN32 Table:	199	141	93	63	47	37	29	24
NiTek 1 EAN36 Table:	199	194	113	80	56	44		

(Both EAD calculations with Normal-profile and PO2 1,4)

EAD calculated tables profiles are dependent on chosen FO₂ and Short/Normal (1/0) profile. Only EAN32 and EAN36 with Normal profiles have been chosen as examples here.

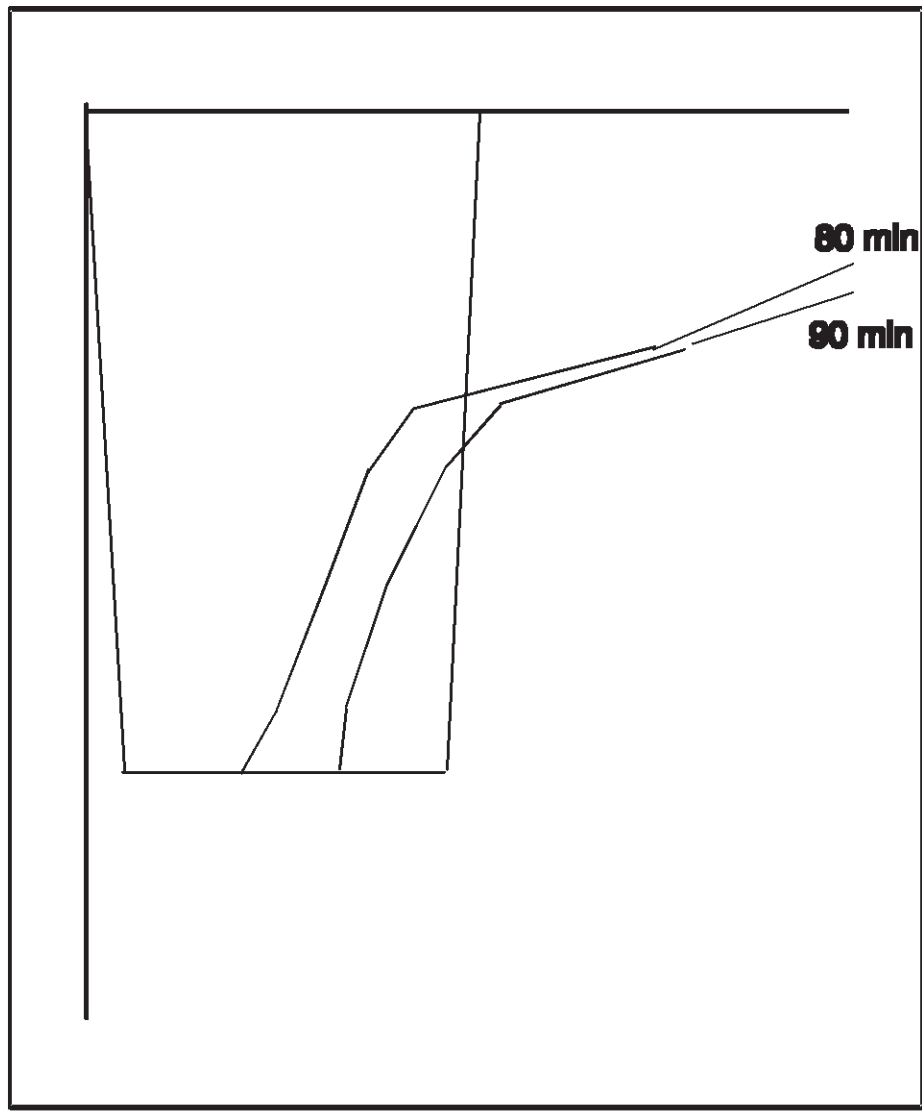


Figure 10: Dive Profile Comparison *Simulated dive to 100 feet/ 30 meters, dive time as long as possible, within no-stop time limits. The square profile represents US Navy dive table limits. The 80-minute profile is the NiTek 1's "Short" table; the 90-minute profile represents the Normal table.*

Getting Around the NiTek 1: The Basics

Activating the Computer

The NiTek 1 can be activated in one of three ways:

1. Manually before entering the water by connecting NEXT + NEXT with moist fingertips.
2. Immersing the unit before the dive.
3. Automatic activation if the diver enters the water with the computer off.

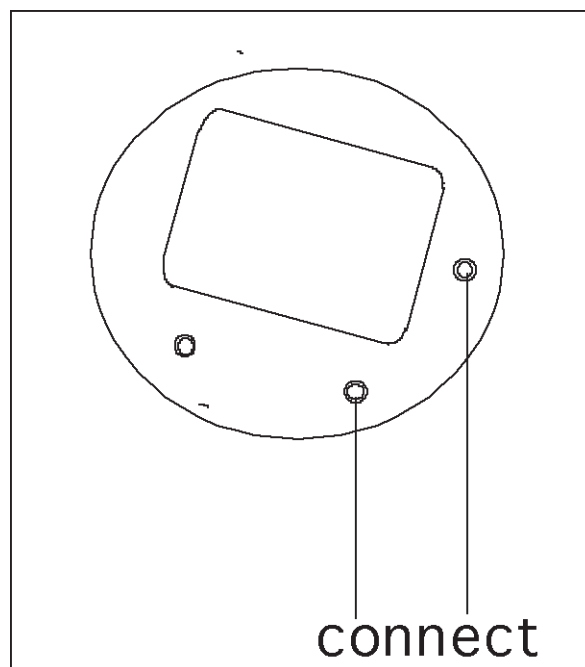


Figure 11 *Location of activation contacts.*

It is recommended that the computer be activated manually so that it can measure the exact ambient pressure. If it is not activated manually prior to the dive, it will activate automatically upon entry into the water and will use a reference value that is sea level air pressure 1.013 mbar.

Computer Self Test

After activation, the LCD will show different displays: It will light and show all segments during a self-test procedure, test the battery, and light again for Surface mode, after it has measured the ambient pressure and is ready to dive.

Battery Test

After the self test procedure, the computer will perform a battery test. During this test the LCD will display numbers between 9 and 0. If the battery is sufficiently charged the LCD will show all segments and then begin working.

If the battery is not giving full power the computer will run a function that will try to revive the battery. This will take max 10 minutes per cycle, and during this time the LCD display will count down from 9 to 0, if needed. If the battery revival is successful, the LCD screen will show all segments again then begin working. If it is not successful the computer will turn off, and a new reviving cycle is needed. *Even a new battery, when taken in use, might need several cycles before being fully operable, if it has been stored for long and/or exposed to excessive heat. After the revival cycles, the battery is as good as new.*

If, after several revival cycles, the unit still does not turn on, the battery should then be replaced. However, if you do not have a spare battery for immediate replacement, the computer can be turned on and used but the beeps and LCD light

will not work. To turn the computer back on in this case connect DO/NEXT + DO + NEXT switches simultaneously and wait for the 9 on the LCD to change to 8. The battery should then be replaced before the next dive.

Function Buttons

The NiTek 1 has four function buttons that allow you to operate the computer:

1. DO/NEXT.
2. NEXT.
3. DO.
4. Tap switch.

After activation and the Self Test and Battery Test, the computer goes into Surface mode. From here the various functions are accessed by connecting the function buttons in different combinations with moist fingertips as follows:

1. NEXT + NEXT selects the function modes.
2. DO + DO starts selected function mode.
2. DO/NEXT + NEXT + DO terminates function mode and returns to Surface mode
4. Tap Switch (see below).

Tap Switch

The tap switch operates the LCD light and warning beeps. To turn the functions on and off, tap the computer with a hard object or fingertip (avoid scratching the unit) as follows:

Tap switch operation underwater

- *LCD Light* Tap the unit with fingertip one time. The light will remain on for seven seconds and then will turn off.
- *Audible Beeps* Tap the unit one time to turn the light on, then a second time to turn the beeps on. To turn the beeps off, tap the unit twice.

Instead of tapping the unit with fingertip, you might find it easier to operate the switch by gently touching the units side against your tank, or other hard object.

Tap switch operation on surface

With one hand connect the DO/NEXT + NEXT + DO switches, simultaneously with other hand tap the unit in the upper left corner area of the LCD as described above (avoid scratching the unit).

Turning Off The Computer

After a dive the NiTek 1 will remain on for 30 minutes. It will then go into an energy efficient calculation mode. This is indicated with a clock icon on the LCD. The computer remains in this mode until the NiTek 1 calculates no residual nitrogen remains.

Connecting NEXT + NEXT will bring the NiTek 1 back to the Surface mode where the desaturation and “Do Not Fly” time can be seen.

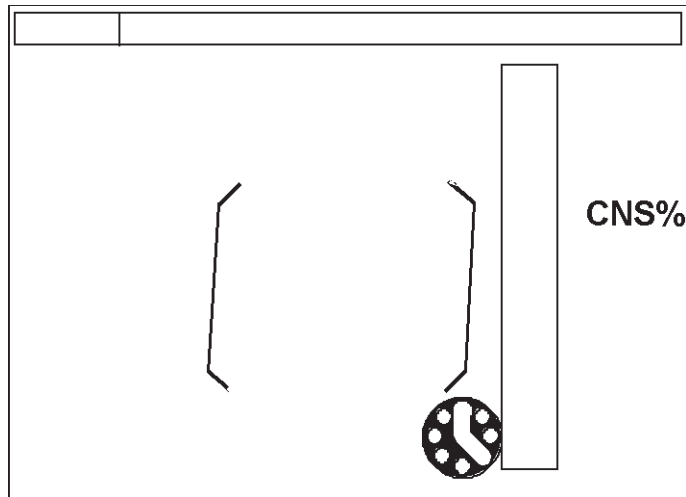


Figure 13 *If the NiTek 1 is turned on, but not used for 30 minutes it will turn off automatically.*

NiTek 1 on the Surface

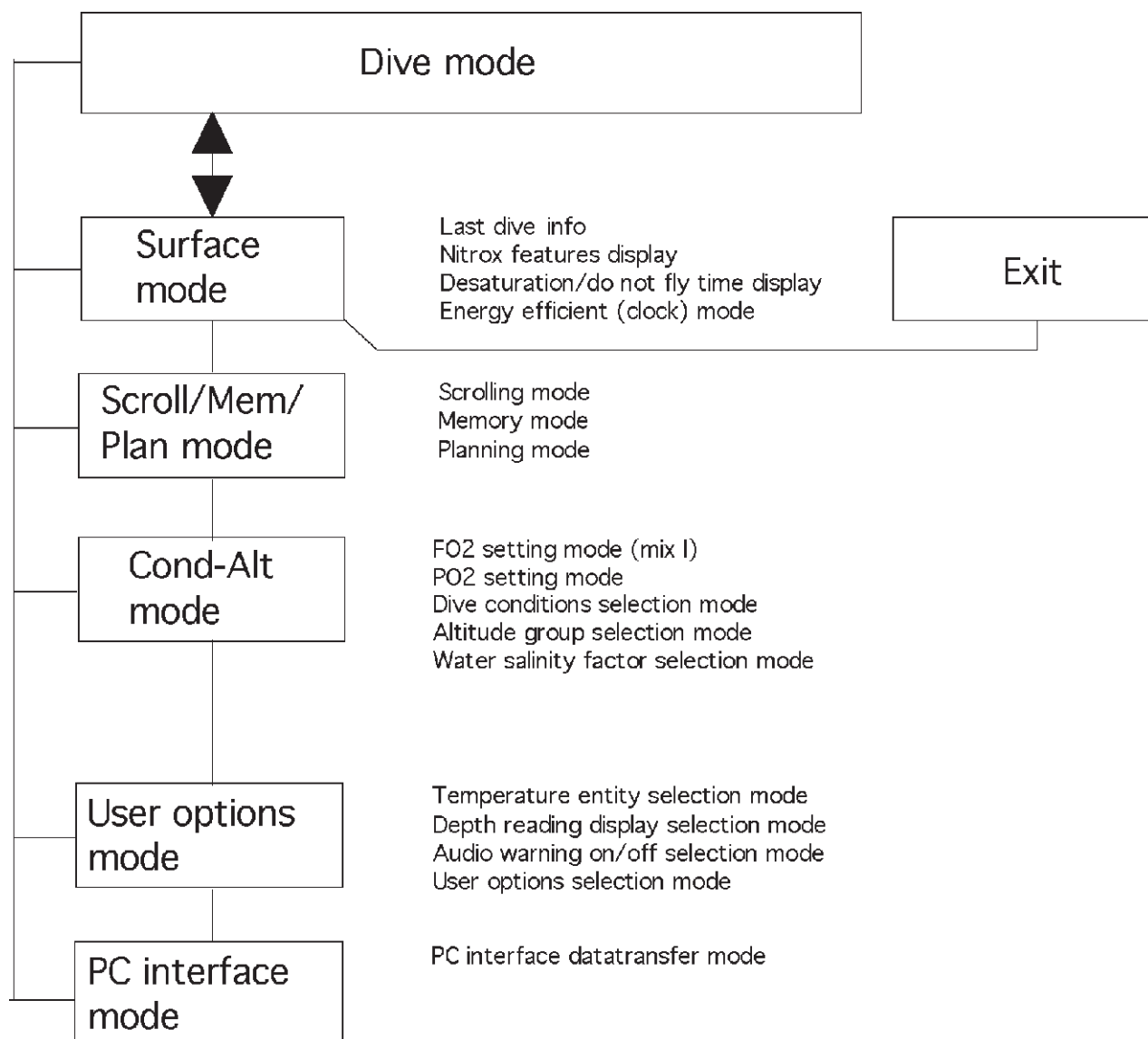


Figure 14 *NiTek 1 functions and pre-dive selections.*

Function Modes

The NiTek 1 has eleven function modes in which to review information or make choices about the information being provided:

1. Surface mode (Surface, Nitrox features and Desaturation Time displays).
2. Scroll/Mem/Plan mode.
 - Scrolling mode.
 - Memory mode.
 - Planning mode.

3. Cond-Alt mode.
 - ▶ (FO₂) setting mode.
 - ▶ (PO₂) setting mode.
 - Conditions setting mode.
 - Altitude setting mode.
 - Water salinity setting mode.
4. User Options mode.
 - Temperature units setting mode.
 - Metric/imperial units setting mode.
 - Audio warning signal on/off setting mode.
 - User selectable features setting mode.
5. PC mode.

Surface Mode

When the NiTek 1 is manually activated it performs the Self Test and Battery Test, then goes into the Surface mode. In the Surface mode the LCD display scrolls continually between three displays (Surface, Nitrox Features and Desaturation Time displays). Also, if the unit is on, but not touched for 15 minutes, it will present a fourth display, a clock icon ticking in display, indicating an energy efficient calculation mode.

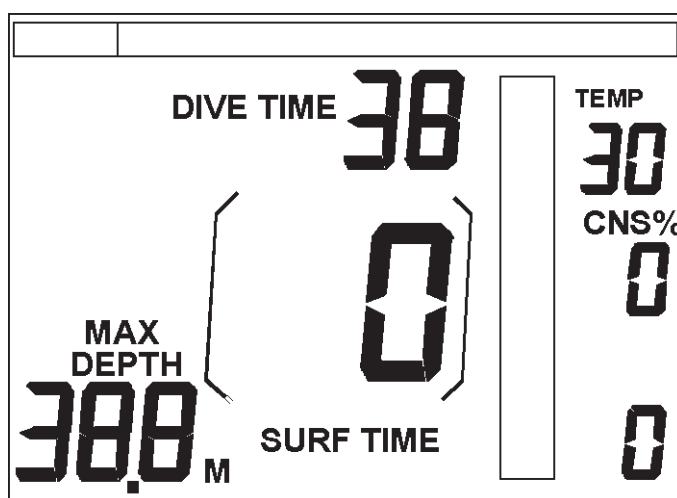


Figure 15 The first screen shows information about the last dive, dive time, max depth, CNS percent and surface interval from last dive in hour and minutes. Upper right hand corner presents current temperature; PO₂ or other info can also be presented.

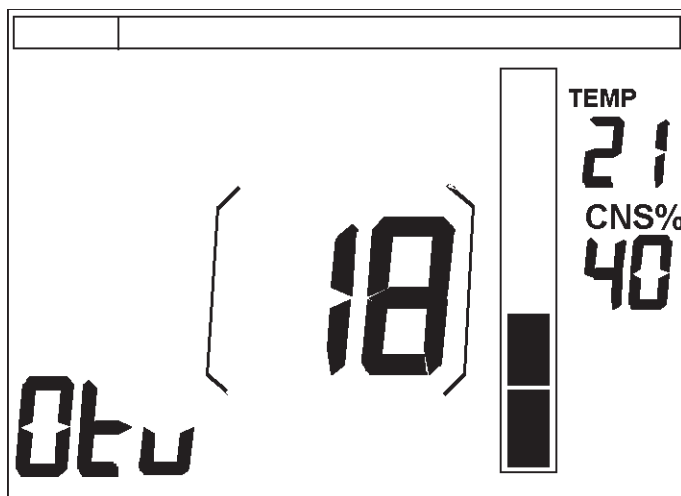


Figure 16 The second display shows current CNS percent and gained OTUs. OTUs are given per dive, and should be multiplied by ten to get actual number. (Here are 180 OTUs from last dive.)

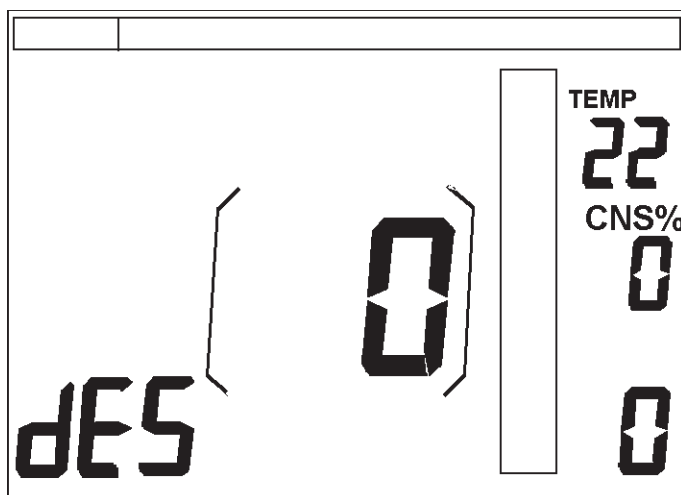


Figure 17 The third display shows the desaturation time remaining, which can also be used as a desaturation time/ “do not fly” indicator. The desaturation time indicator gives the exact time of tissue desaturation, calculated to 1.4 feet of water (42 mbar). If you have not dived within the last 24 hours, the desaturation time is 0 hours, 0 minutes, as shown above.

Scroll/Mem/Plan Mode

Scroll/Mem/Plan mode allows you to access the No-Stop Time Scrolling function, the Dive Log and Dive Profile Memory functions, and the Dive Planner functions. To access Scroll/Mem/Plan mode from Surface mode:

1. Connect NEXT + NEXT one time to get to Scroll/Mem/Plan mode from Main Menu.

Scroll Function To access Scroll function from Scroll/Mem/Plan mode:

1. Connect DO + DO to get into the Scroll function
2. Connect DO + DO another time to activate the scrolling function

What you will see in the Scroll function:

- No decompression times shown in ten-foot/three meter increments showing depth and time.
- Current PO₂ for each depth at the upper right hand corner.
- Current CNS percentage from last dive (or CNS percent 0 if no dive made).
- The scrolling is done to a depth where the current PO₂ reaches the set PO₂ limit, with the chosen FO₂ (Example: EAN36 with set PO₂ limit of 1.4 atmospheres only scrolls to 90 feet/27 m depth). The maximum depth to scroll is 200 feet (when set for an FO₂ of 21 percent and PO₂ limit of 1.6 atmospheres).

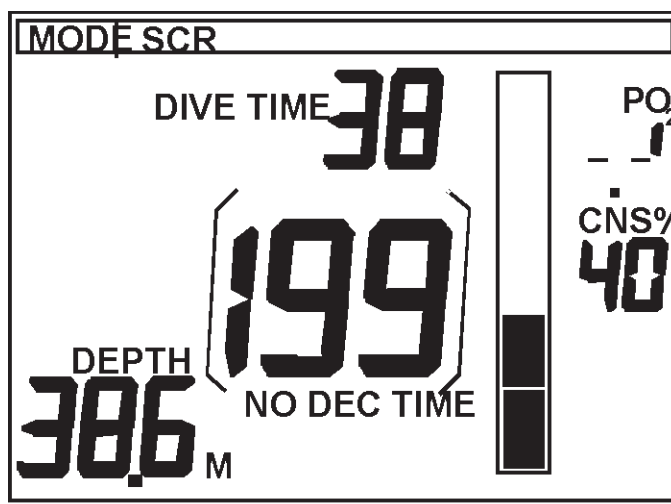


Figure 18 Once the computer has scrolled a complete cycle it returns to the Surface mode or to exit sooner connect do/next + next + do. Here 199 minutes for 38.6 meters

Memory Function

The Memory function stores the dive profiles of the last ten dives or six hours of diving, whichever limit is met first. It scrolls from the last dive to the first dive, with the highest number being the latest dive. To access Scroll/Mem/Plan mode from Surface mode:

1. Connect NEXT + NEXT one time to get to Scroll/Mem/Plan mode from Main Menu.

To access Memory function from Scroll/Mem/Plan mode:

1. Connect DO + DO one time to get to the Scrolling function.
2. Connect NEXT + NEXT once to get into the Memory function.
1. Connect DO + DO to activate the Memory functions.

The Memory function has been designed with two “layers” of memory, the Dive Log and the Dive Profile, making it very easy to review the information. After choosing the dive the user wants to see, he/she will be presented first with that

particular dives log information, then FO₂/PO₂ settings for that dive and last dive profile.

Dive Log

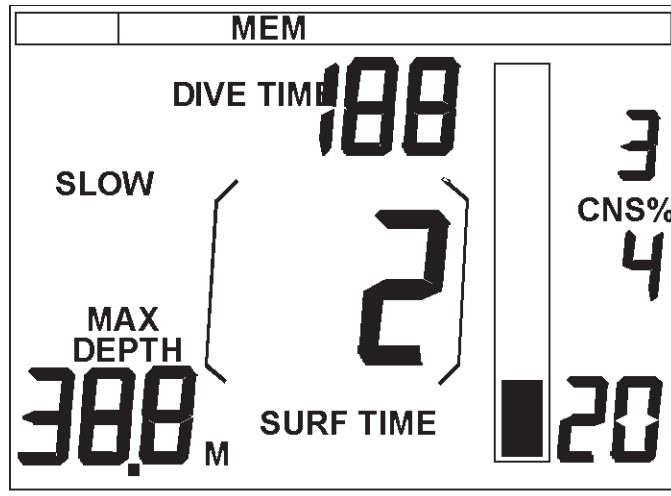


Figure 19 The Dive Log, first screen of the three memory displays, shows the general information for that dive: Dive Number; Maximum Depth; Dive Time, Surface Time, Violations and CNS Percent. The Dive Log can be scrolled through by connecting DO + DO once per each dive.

Violations The Dive Log will also show if the ascent rate, safety stop or decompression stop were violated. This will be shown by that particular icon remaining on.

FO₂/PO₂ Settings for Each Dive Memory Retention

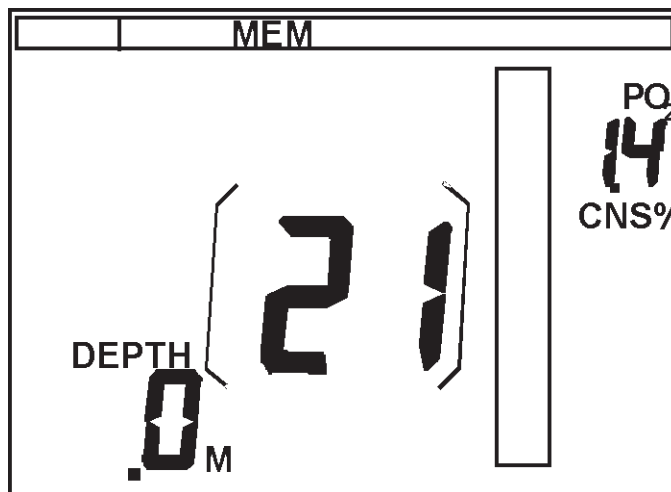


Figure 20 Settings for this dive were: FO₂ 21 percent/PO₂ 1.4 atmospheres.

Dive Profile

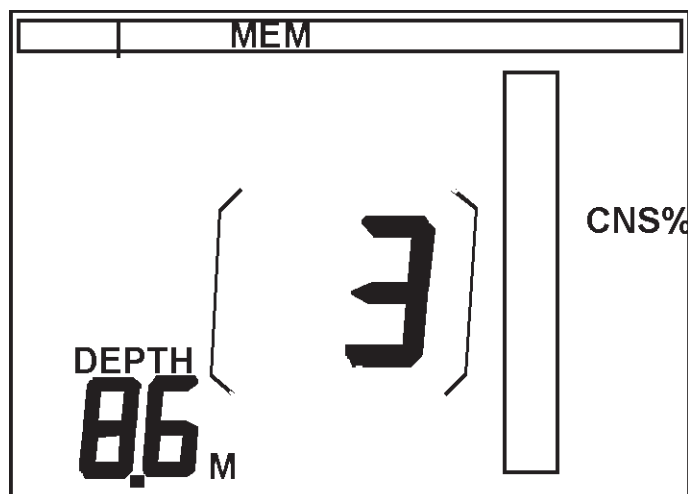


Figure 21 The Dive Profile, the third screen of the three displays, will show the details of any dive. If you pause at a particular dive in the Dive Log, the dive details on that dive will be shown. The dive profile is broken into three-minute segments. The average depth for each segment is shown. Surface times of less than 10 minutes will be calculated and shown as “0” depth and included in the total dive time.

Zero Depth A depth of “0” feet or meters will be added to the total dive time as extra segments, so every time the diver surfaces, even for only one minute, one full three-minute segment with a depth of “0” feet or meters is added to the profile. Therefore, the actual dive time in dive log memory and the dive time in the profile memory can be different. The difference is the time for the “0” depths.

To exit Memory mode connect DO/NEXT + NEXT + DO.

Planning Function.

In the Planning function you can simulate single or repetitive dives. The simulation program can be used at any time, even directly after diving when the unit is calculating desaturation. The planning function will take into consideration and display CNS percent and current PO_2 for chosen FO_2 . Your previous diving history will be taken as a starting point for simulation. To access Scroll/Mem/Plan mode from Surface mode:.

1. Connect NEXT + NEXT one time to get to Scroll/Mem/Plan mode from Surface mode.

To access Planning function from Scroll/Mem/Plan mode:.

1. Connect DO + DO once to get to the Scrolling function.
2. Connect NEXT + NEXT two times to get into the Planning function.
3. Connect DO + DO to activate the Planning function.

To move up and down inside the planner:

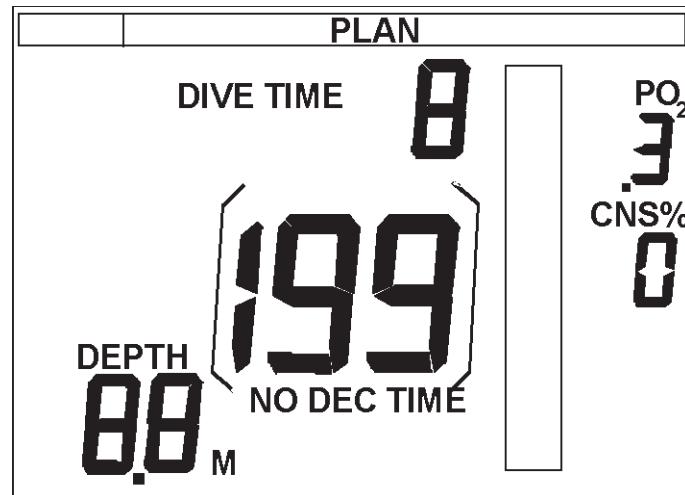


Figure 22 *Moving around inside Plan mode.*

1. Activate planning function (note that time starts running immediately).
2. Connecting DO/NEXT + NEXT will descend.
3. Connecting DO/NEXT + DO will ascend.

The Planning function will:

- Simulate repetitive dives taking into consideration previous dive history.
- Run twelve times faster than normal time to allow shorter planning times, meaning one minute of planning equals twelve minutes of dive time.
- Show same information as in actual diving except ascent warnings.
- Show current PO₂ reading in the upper right corner of the display and CNS percent in left middle area of the display.
- Simulate multilevel and decompression diving (see section on Decompression Diving).
- Simulate dives at altitude (see section on Altitude mode).

The Planning function will not:

- Beep or give ascent rate warnings.
- Store anything in dive history memory.

How to plan a dive:

1. From the Planning function, connect DO + DO and start the (dive) time running.
2. To enter the depth connect NEXT + NEXT to go down and DO + DO to move up. During depth changes the clock stops running.

3. To simulate a surface interval, bring the depth back to 0. The clock will continue to run on a 180 minute cycle, so be sure to note the time at which the surface interval begins and the time at which it ended.
4. To plan another dive, repeat step number 2. Be sure to note the time at which the surface interval ended and the next dive started.
5. If your planning brings you through an entire 180 minute cycle, the dive time will start over again so keep track of the number of cycles.
6. If you wish to plan a Nitrox dive, prepare the unit for the FO_2 and PO_2 for planning just as you would do for real diving.

Dive Plan Example Here is an example of how this works: if you plan two dives, the first with dive time of one hour and the second 30 minutes with a surface time of 3 hours, the time reading in the dive time will be from 0 to 60 minutes for the first dive, then from 60 minutes to 180 minutes to 60 minutes for the three-hour surface interval and then from 60 minutes to 90 minutes for the second dive. Here you have two 180 minutes sequences, one full and one to 90 minutes.

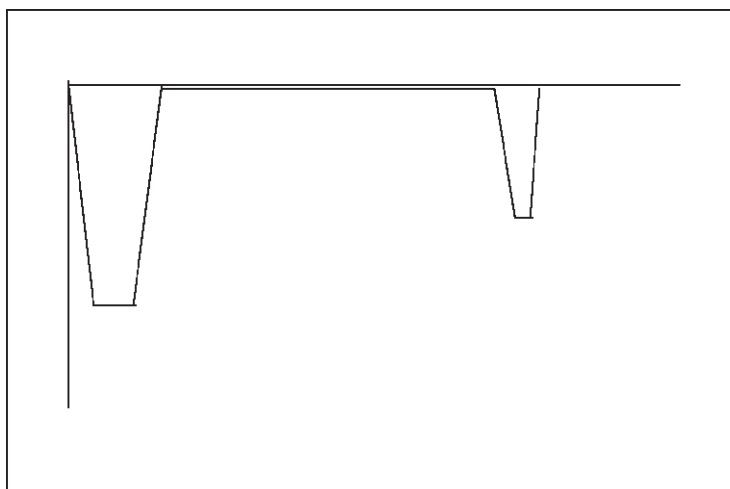


Figure 23 *Dive plan example.*

To exit Planning function connect DO/NEXT + NEXT + DO.

Cond-Alt Mode

Cond-Alt mode allows you to set your FO_2 mix, PO_2 warning limit, dive conditions selection of Normal/Short tables, Altitude group and Water salinity correction factor selection. To access Cond-Alt mode from Surface mode:

1. Connect NEXT + NEXT two times to get to the Cond-Alt mode

In the Cond-Alt mode, you have following functions:

- FO_2 selection function.
- PO_2 selection function.
- Dive conditions selection function for Normal/Short tables.

- Choice of altitude group function.
- Water Salinity correction factor function.

WARNING

The next five sections discuss the changing of the oxygen gas fraction and partial pressure. Please do not make changes to your computer unless you have completed the proper training and understand what you are doing. *Changing the oxygen fraction settings from 21 percent oxygen to another mixture while using air in your tank can result in decompression sickness and death.*

Fraction Of Oxygen (FO₂) Selection Function In the Fraction of Oxygen (FO₂) Selection function you select the an FO₂ of the gas mix being used during next dive.

To access Cond-Alt mode from Surface mode:

1. Connect NEXT + NEXT two times to get to the Cond-Alt mode

To access FO₂ Selection function from Cond-Alt mode:

1. Connect DO + DO once to enter the FO₂ function.
2. Connect DO + DO to select the desired percentage.

Each time you connect DO + DO the percentage will increase by one percent. Selection range is 21 percent to 50 percent.

IMPORTANT

The NiTek 1 will remember last chosen FO₂, and use this for the next dive. This FO₂ setting will not change until you change it.

- After a change in setting, the NiTek 1 will not record the new setting before returning to the surface mode.
- The user is responsible vor checking his/her gas mix each time and making certain the computer is set correctly.
- Be sure to check and confirm the FO₂ setting before getting in the water.
- The NiTek 1 will allow you to use only one gas mix per dive. The NiTek 1 will increase the setting in one percent increments to a maximum of 50 percent before looping back to 21 percent.

Partial Pressure of Oxygen (PO₂) Limit Setting Function This is where you can set a PO₂ limit. If this set limit is exceeded during diving, audible and visual warning signals are given. The PO₂ limit can be set between 1.2 and 1.6 atmospheres.

To access Cond-Alt mode from Surface mode:

1. Connect NEXT + NEXT two times to get to the Cond-Alt mode.

To access PO₂ Limit Selection function from Cond-Alt mode:

1. Connect DO + DO once to enter the Cond-Alt mode.
2. Connect NEXT + NEXT once to enter the PO₂ Limit mode.
4. Connect DO + DO until the desired PO₂ is displayed.

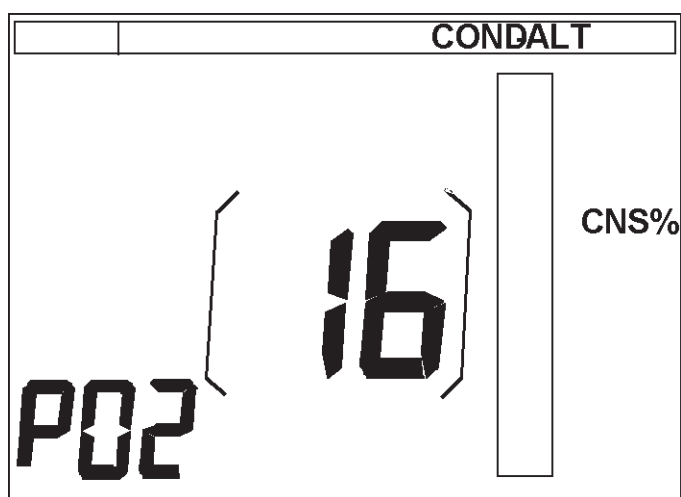


Figure 25 The NiTek 1 will remember last chosen PO₂, and use this for the next dive, if the user does not specify other PO₂. The selection range is 1.2 to 1.6 atmospheres, in 0.1 atmosphere increments.

The PO₂ will be reset when the unit is turned off (when desaturation calculation is done), and when restarted, it will always start with a default PO₂ value of 1.2 atmospheres. After a change in setting, the NiTek 1 will not record the new setting before returning to Surface mode.

WARNING

Refer to your Nitrox/EANx course training material to determine the PO₂ setting that you should use. *Increasing the PO₂ from 1.2 to a higher number will increase your risk of oxygen toxicity.*

Dive Conditions Selection Function

To access Cond-Alt mode from Surface mode:

1. Connect NEXT + NEXT two times to get to the Cond-Alt mode.

To access Dive Conditions Selection function from Cond-Alt mode:

1. Connect DO + DO once to enter the Cond-Alt mode.
2. Connect NEXT + NEXT five times to get to the Dive Conditions mode
3. Connect DO + DO to select the NORMAL or SHORT tables.

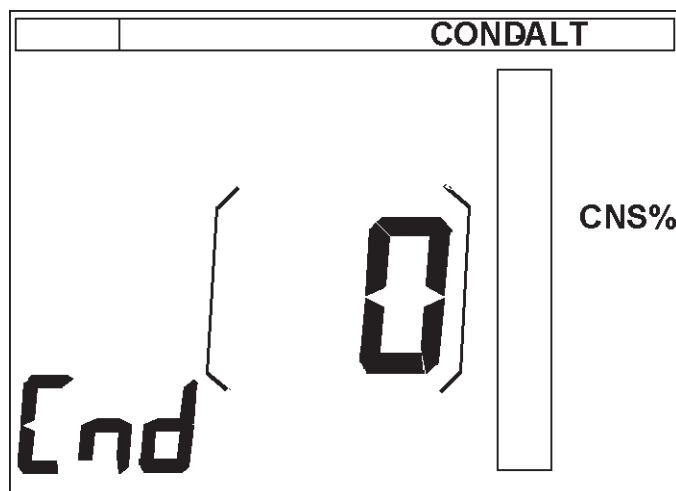


Figure 26 The NORMAL setting is indicated with a “0” in the display, and the Short table setting is indicated with a “1” in the display.

- The NORMAL (0) dive profile is designed to be used in calm waters under normal dive conditions, when the diver is fit and well rested.
- The SHORT (1) dive profile is more conservative and limits the bottom time the deeper you dive. It is designed to be used in cold water 47°F and below, when the diver has made repetitive dives, when harsh conditions exist (current, bad visibility, etc.), when it is anticipated that diving will be strenuous, when you are diving at altitude or when the diver is not fit.
- The dive profile must be chosen before entering the water and cannot be changed while underwater. You can choose a different mode for each dive and the computer will calculate all consecutive dives accordingly.

Altitude Group Selection Function

To access Cond-Alt mode from Surface mode:

1. Connect next + next two times to get to the Cond-Alt mode.

To access Altitude Group Selection Function from Cond-Alt mode:

1. Connect DO + DO once to enter the Cond-Alt mode.
2. Connect NEXT + NEXT six times to get to the Altitude group selection function.
3. Connect DO + DO to move through the altitude groups.
4. To select an altitude group, stop at the altitude group at which you will be diving.

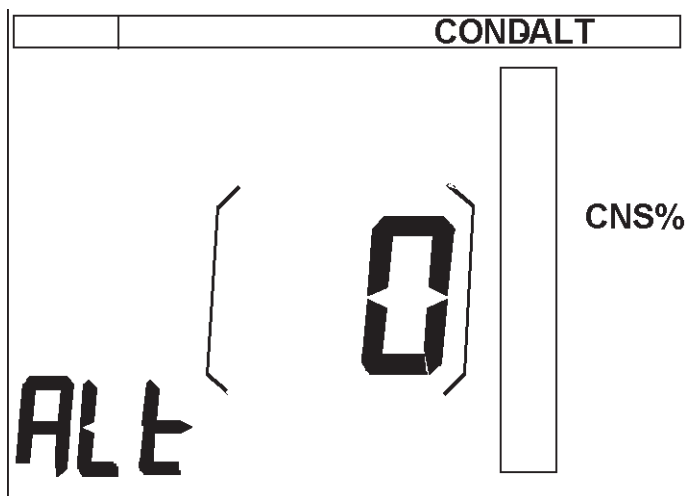


Figure 27 *In the Altitude Selection mode you must manually enter the altitude range at which you will be diving.*

The altitude groups are as follows:

	Level	Table Correction Percent (No Stop Times)
A0:	0-984 feet	0%
A1:	984 feet-2,952 feet	10%
A2:	2,952 feet-4,920 feet	15%
A3:	4,920 feet-7,872 feet	20%
A4:	7,872 feet +	25%

The NiTek 1 is designed to operate up to 11,480 feet.

WARNING

Not setting the correct altitude group before diving greatly increases the risk of decompression sickness which could result in serious injury or death. The Nitek 1 does not have automatic altitude adjustment, it must be made by the user

CAUTION

When the diver is at altitude for less than 24 hours, only the SHORT (1) dive conditions mode should be used to compensate for the extra nitrogen stored in body tissues. After an adaptation period of 24 hours at altitude the NORMAL dive conditions mode can be used, but it is recommended that the SHORT (1) continue to be used as an extra margin of safety.

Water Salinity Correction Function

To access Cond-Alt mode from Surface mode:

1. Connect NEXT + NEXT two times to get to the Cond-Alt mode.

To access Water Salinity Correction function from Cond-Alt mode:

1. Connect DO + DO once to enter the Cond-Alt mode.
2. Connect NEXT + NEXT seven times to get to the Water salinity correction function.
3. Connect DO + DO to select the desired water salinity percentage.

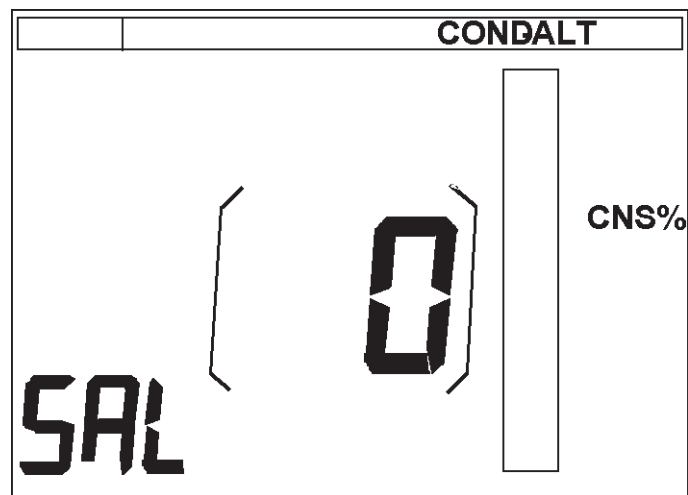


Figure 28 *Water salinity correction factor corrects your computers calibration to match the water salinity in your diving area. The selection range is from 0 percent to 7 percent.*

- Default setting is always fresh water (0 percent). Other settings are: 3 to 4 equals the Atlantic; 7 equals the Red Sea.
- To exit Cond-Alt Selection mode connect NEXT + NEXT once after making your selection.
- The NiTek 1 will also return automatically to the Surface mode when the computer has remained inactive for a few seconds.

User Options Selection Mode

In User Options Selection mode, you have following functions:

- Temperature units (imperial or metric) selection function.
- Depth units (imperial or metric) selection function.
- Audio warning on/off selection function.
- Secondary dive parameter display selection function.

To access User Options Selection mode from Surface mode:

1. Connect NEXT + NEXT three times to get to User Options Selection mode.
2. Connect DO + DO until the measurement combination you want to use is displayed.

Temperature Units (Imperial Or Metric) Selection Function

To access User Options Selection mode from Surface mode:

1. Connect NEXT + NEXT three times to get to User Options Selection mode.

To access Temperature Units Function from User Options Selection mode:

1. Connect DO + DO once to get to the Temperature Units Function.
2. Connect DO + DO until the measurement combination you want to use is displayed.

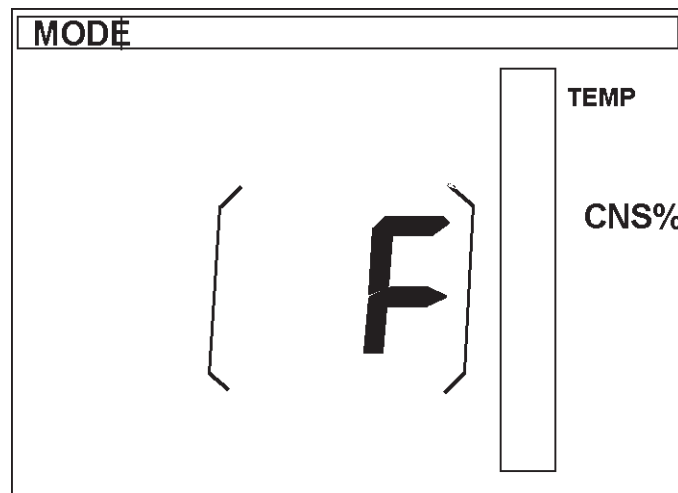


Figure 29 *Temperature Units function (showing degrees Fahrenheit).*

Depth Units Selection Function

To access User Options Selection mode from Surface mode:

1. Connect NEXT + NEXT three times to get to User Options Selection mode.

To access Depth Units Selection function:

1. Connect DO + DO once to get to activate Depth Units mode.
2. Connect NEXT + NEXT once to get to the Imperial or Metric selection mode.
3. Connect DO + DO until the units of measurement you want to use is displayed.

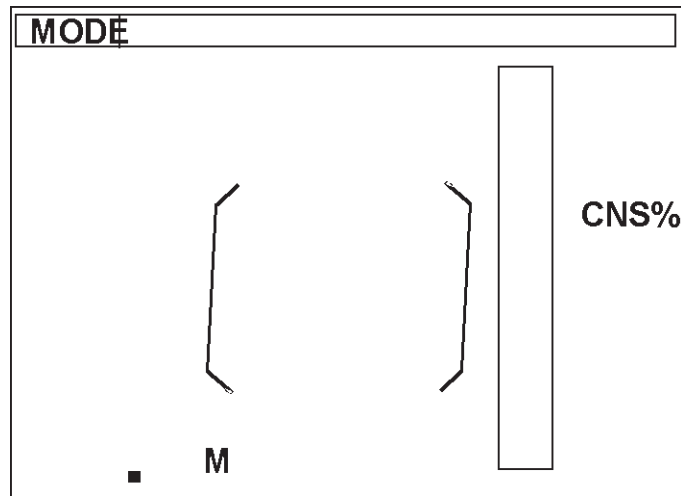


Figure 30 *Depth Units mode (set for metric).*

Audio Warning On/Off Selection Function

This is where the warning beeps are turned on or off.

To access User Options Selection mode from Surface mode:

1. Connect NEXT + NEXT three times to get to the mode

To access Audio Warnings On/Off Selection function:

1. Connect DO + DO once to activate the Audio Warnings On/Off Selection mode.
2. Connect NEXT + NEXT two times to get to the Audio Warnings On/Off Selection function.
3. Connect DO + DO until the setting you want to use is displayed.

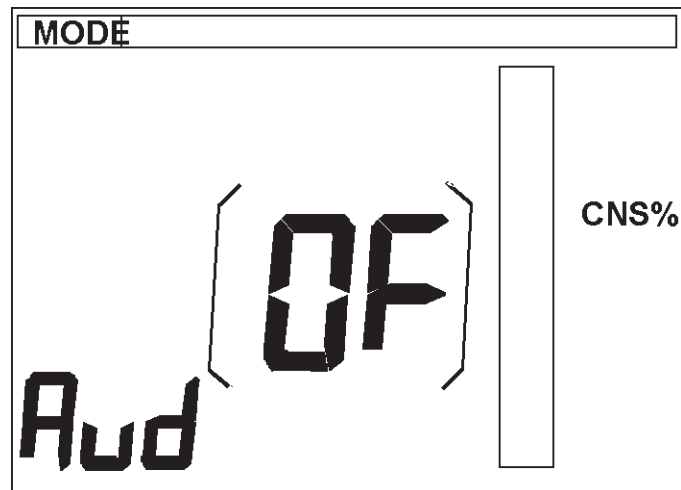


Figure 31 *Audio Warnings On/Off Selection.*

The audible warning can also be turned on and off under water using the Tap Switch.

Secondary Dive Parameter Display Selection Function

In Secondary Dive Parameter Display Selection mode you can select to display in the upper right hand corner of the display between four different information, individually or revolving:

- Current PO₂ (O₂).
- Current Maximum Depth (dp).
- Water Temperature (te).
- Current Leading Tissue In Algorithm (ti).
- All Information Revolving (au).

To access User Options Selection mode from Surface mode:

1. Connect next- + next three times to get to the mode.

To access the Secondary Dive Parameter Selection function:

1. Connect do + do once to activate the mode.
2. Connect next + next three times to get to the Units mode.
3. Connect do + do until the combination you want to use is displayed.

PC Interface Mode

The PC Interface mode allows you to upload the information from the NiTek 1 to a personal computer. To access PC Interface mode from Surface mode:

1. Connect NEXT + NEXT four times to get to PC Interface mode.

To enter and activate the PC Interface mode:

1. Connect DO + DO once to enter the PC Interface function.
2. Connect DO + DO a second time to activate the data transfer.

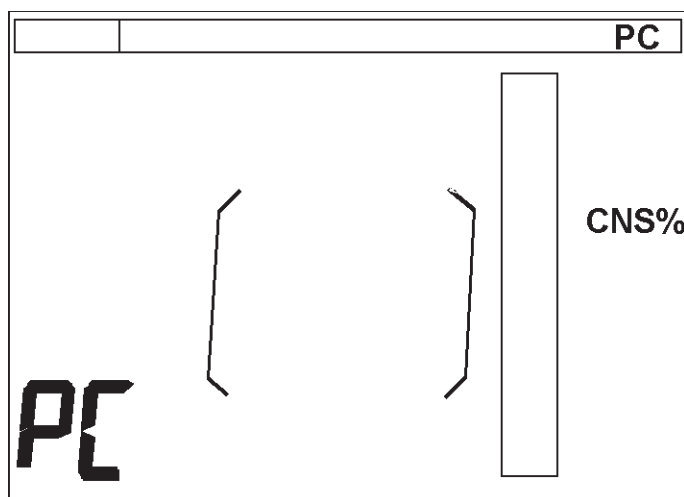


Figure 33 *PC Interface mode.*

To upload the information set the PC interface cable in place on top of the NiTek 1 so that the interface's optical reader faces the LCD. Prepare your PC to accept data, connect DO + DO on the NiTek 1 to initiate transfer. The data will then be transferred in five to ten seconds. The NiTek 1 will return automatically to the Surface mode after the data transfer, or when it has remained inactive for a few seconds.

Dive Functions

Underwater, the following information is shown:

- Dive Time (0-199 Minutes).
- Depth.
- Water Temperature.
- Current Leading Tissue for Algorithm.
- Current Maximum Depth Reading.
- Current PO₂ Reading.
- No Stop Time (time remaining before a decompression stop is required).
- CNS Percentage Reading.
- Total Ascent Time.
- Battery Low.

Nitek 1 Nitrox Use Warnings

PO₂ Violation Current depth reading blinking, (with LCD light blinking) for PO₂ violation.

CNS Percent Warning Current depth reading blinking, (with LCD lights blinking) for CNS percent violation.

Depth Limit Violation The NiTek 1 maximum operation depth is 213 feet. If this is exceeded, the depth display will blink. Note that if this happens, the computer will not go into error state, but will continuously assume a depth of 213 feet, until the diver ascends above 213 feet.

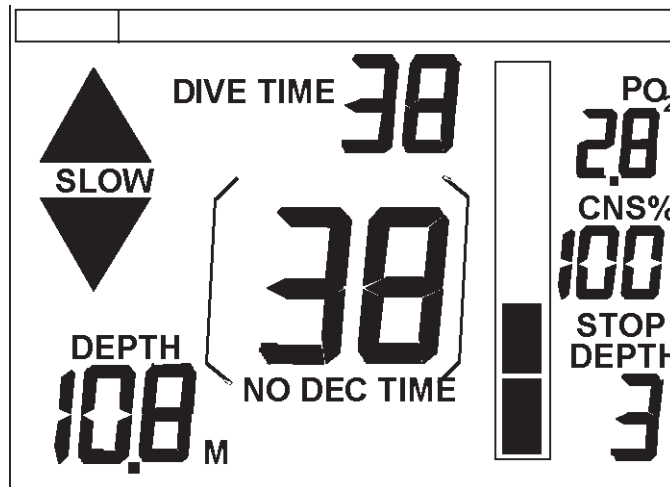


Figure 34 Ascent Rate Warning *The word slow with two arrows will appear on the screen and the LCD lights will flash until you have slowed to an acceptable rate (see the section on Ascent Rate).*

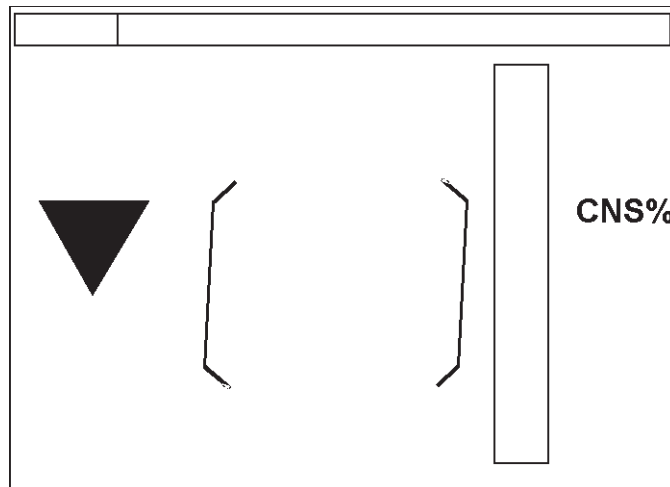


Figure 35 Move to Stop Depth *If the diver has ascended above the stop depth, an arrow pointing down will flash on the screen to guide the diver back to the stop depth (see section on Decompression Diving).*

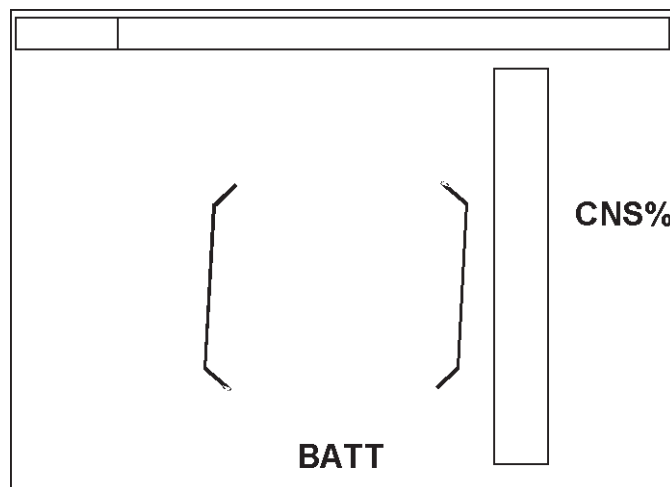


Figure 36 Battery Low Caution *The BATT symbol will be shown on the LCD screen and the LCD lights will not work.*

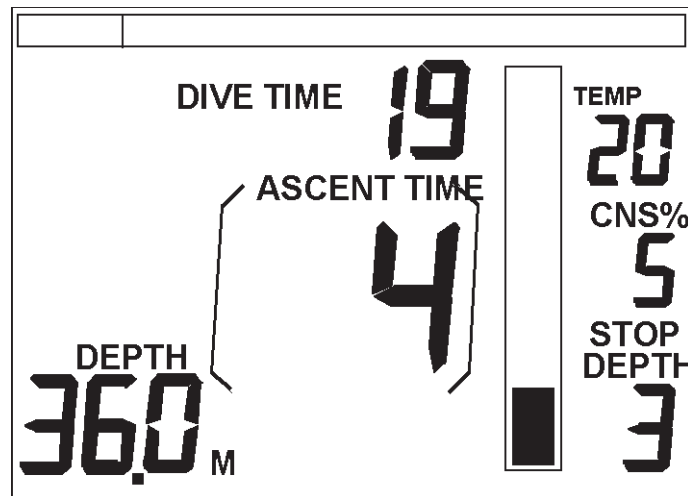


Figure 37 Decompression Dive *If you have entered into a decompression situation, the NiTek 1 will flash the LCD lights three times.*

Ascent Rate

The computer ascent rate is as follows:

- 213 feet to 66 feet: 66 feet per minute.
- 66 feet to surface: 33 feet per minute.

If the ascent rate has been exceeded the computer will give the following warning:

- *Visual* The word SLOW with two arrows will appear on the screen and the LCD lights will flash until you have slowed to an acceptable rate. LCD lights will also be flashing
- *Audible* If the ascent rate is exceeded a continuous beep will be given until the diver has slowed down to an acceptable rate (Audible Beeps mode should be on).

WARNING

There can never be a flying after diving rule that is guaranteed to prevent decompression sickness completely. Rather there can be guidelines that represent the best estimate for a conservative surface interval for the vast majority of divers. There will always be an occasional diver whose physiological makeup or special diving circumstances will result in decompression sickness.

Diver's Alert Network (DAN) recommends that in no case should flying take place within at least 12 hours after diving. After multiple dives and/or several days of diving the surface interval before flying should be a minimum of 24 hours.

Decompression Diving

WARNING

The makers of the NiTek 1 do not advocate diving outside the recommended sport diving limits. Diving outside the recommended sport diving limits requires special training and equipment and has certain inherent risks. No attempt is made in this manual to explain the many considerations essential to safe diving outside the recommended sport diving limits, or the many risks.

The information in this section is provided only to give you certain limits of the NiTek 1 as well as what information will be supplied should you find yourself in an inadvertent decompression situation.

Limitations of the NiTek 1 The maximum depth of the NiTek 1 is 213 feet. If the computer is taken deeper than this, the LCD will continue to show 213 feet with the depth reading blinking, and all calculations will assume a depth of 213 feet

Decompression dive warning:

- *Visual* If you enter into a decompression dive the LCD lights will flash three times. If you continue diving after the decompression dive warning, the LCD display will show the following:

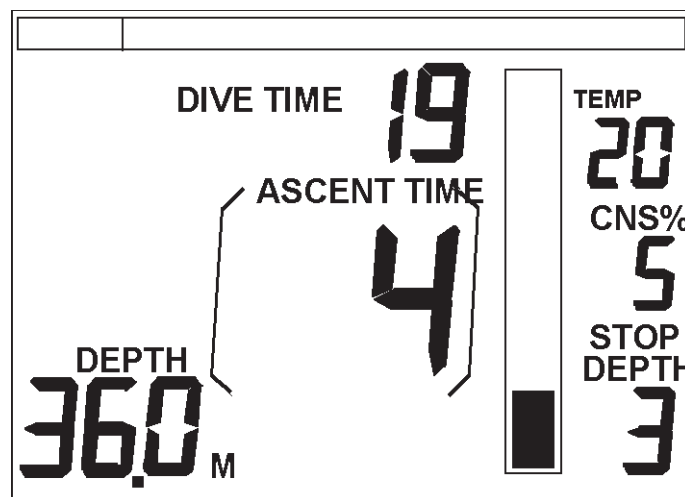


Figure 38 In this case, the NiTek 1 is telling you that a decompression stop is required at three meters and that the total ascent time, including the decompression stop is four minutes.

If you ascend above the stop depth ceiling an arrow pointing down will show on the screen until you descend to the proper depth. See diagram below:

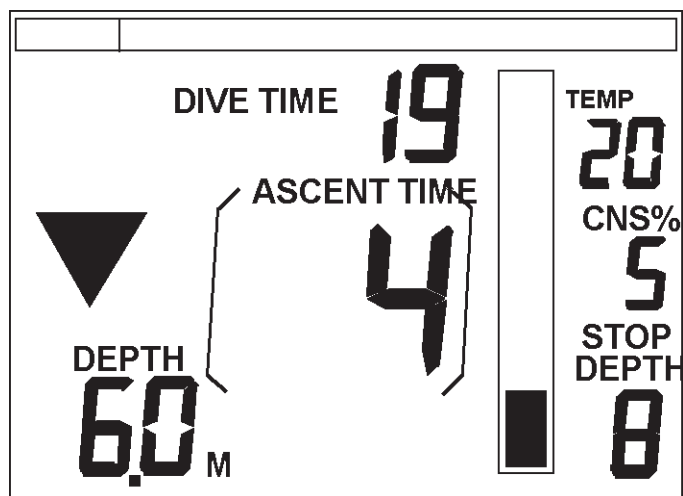


Figure 39 *NiTek 1 display when ascent ceiling is violated.*

If you do not do the decompression stop, the NiTek 1 will continue to calculate the ascent, however, the ignored decompression stop will be recorded in Memory mode under the dive profile. When the decompression stop is completed, the stop depth will change to the next stop depth or return to a no-decompression screen.

Care and Maintenance

General Care and Maintenance

1. After use, rinse the unit thoroughly with fresh water and let it dry in a cool place.
2. To remove dirt, use only a mild detergent and soft brush.
3. Never use solvents or compressed air to clean or dry the NiTek 1.
4. Do not leave the NiTek 1 where it is exposed to direct sunlight or other sources of extreme heat.
5. Always store your NiTek 1 in the protective pouch in which it comes and prevent it from shock and dropping. Do not pack on the bottom of a dive bag under other equipment.
6. Do not open the NiTek 1 case for any purpose other than replacing the battery.
7. If the NiTek 1 is put in a pressure chamber, it should always be underwater. The unit should never be pressurized in a chamber without water as it may damage it.
8. *Never clean the unit with alcohol or other solvent as this will damage the unit irrevocably.*

For servicing other than battery replacement, contact your local authorized Dive Rite dealer.



Alcohol and other solvents may permanently damage the LCD lens if applied to its surface. Never clean the unit with any solvent.

Battery Information and Replacement

NiTek 1 constantly monitors the battery to draw out its full energy potential, thus increasing the life of the battery.

Battery Self Test Procedure When the computer is turned on and after the self test procedure, the computer will perform a battery test. During this test the LCD will display the number 9. If the battery is sufficiently charged the LCD will show all segments and then begin working.

If the battery is not giving full power the computer will run a function that will try to revive the battery. This will take a maximum of three minutes and during this time the LCD display will count down from 9 to 0, if needed. If the battery revival is successful, the LCD screen will show all segments again then begin working. If it is not successful the computer will turn off. The battery should then be replaced.

A Low Battery When The Computer is in Use This is indicated by a BATT symbol.

After the Low Battery Indication is Given After the low battery indication is given, the computer will continue to operate, without LCD lights, for approximately 50 hours before it is inoperable.

Dive Memory Retention If the battery goes dead while changing the battery, the computer will retain all the information that is in the Memory mode. The information from the last dive that is shown in the Surface mode, will be lost in the Surface mode but can be obtained from the Memory mode.

Battery Specifications

Battery Type SAFT LS 14250 inorganic lithium battery, 3.5 volts, size 1/2 AA

Battery Life 300 hours of diving, approximately

Remaining Time once Low Battery Symbol Appears 50 hours, approximately (without voice and LCD light functions)

Shelf Life Eight years, approximately

Changing the Battery The NiTek 1 battery can be replaced by the user, although we recommend the user to take his/her unit to an authorized Dive Rite dealer for this purpose. For battery exchange, do as follows:

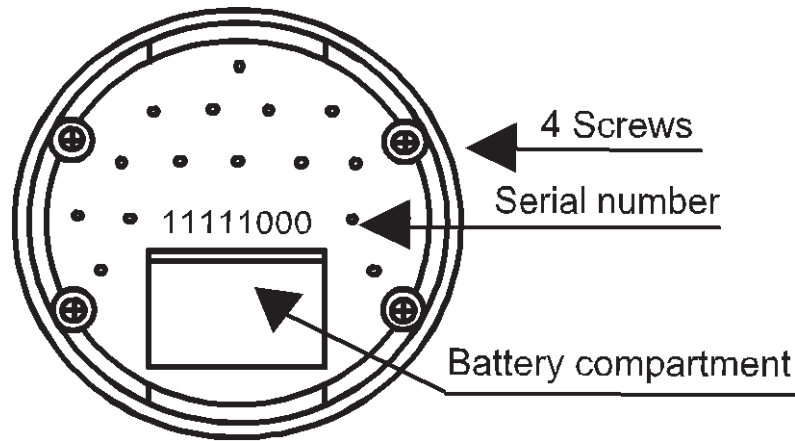


Figure 40 *Rear view of NiTek 1.*

Opening the Back Cover

1. Remove the unit from console, or remove the wrist strap.
2. Unscrew the four screws to loosen the bottom plate.
3. Separate the bottom part from the computer main body
4. Locate the battery chamber on the computer main body, and lift up the battery compartment lid (use no tools).
5. Replace the battery, being sure to match the positive end of the battery with the positive side of the compartment, indicated at the bottom of the battery chamber.
6. While inserting the new battery avoid touching the battery contacts with your fingers.

Re-Assembly

1. Clean the O-ring and battery chamber door first to make sure that there is no debris or hair on the O-ring or sealing surface.
2. Place the O-ring on the battery chamber door (lid).
3. A small amount of silicon lubricant may be used on the O-ring to help the O-ring to slide into the battery chamber.
4. Slide the battery chamber door into the battery chamber, one side first.
5. Press the door into its place with even pressure. Put your forefinger through the square opening in the bottom part.
6. Use your finger to maintain pressure as you slide the bottom plate down your finger and into place, lining up the ridges on the inside on the bottom plate with the grooves on the battery chamber door.
7. The computer main body and the bottom plate have guiding rails to allow the installation in only the correct position. Do not force them together in incorrect position.
8. Keep the unit pressed together while screwing the four screws.
9. Reinstall strap or console.

IMPORTANT

Failure to follow the above instructions and/or use authentic NiTek 1 O-rings will invalidate the warranty of this product.

Technical Specifications

Electronics	Printed circuit board	
Microprocessor	Eight-bit CMOS processor	
Production method	SMD COB	
Depth gauge resolution	1 foot	
Depth range	213 feet	
Temperature range	4°-122°F	
Altitude range	0-11,480 feet	
Ascent rate	216 feet to 66 feet	66 feet per minute
	66 feet to surface	33 feet per minute

Battery

Power source	1 lithium battery SAFT LS3 or LS 14250	
Size	1/2 AA	
Volts	3.5	
Life	Approximately 300 hours of diving without use of light with use of light approximately 15 percent less	
Housing Material	Polycarbonate	
Other materials	Glassfiber armored PA12	

Dive Table Models

Normal and Short (1)	Modified Buhlmann EAN/Nitrox EAD calculation, EAN calculations by Prof. Bill Hamilton, Hamilton Research Inc.
EAN/Nitrox safety precautions	Adjustable FO ₂ and PO ₂ Current PO ₂ displayed during diving CNS clock OTU monitor
Memory capacity	Ten dives for 10 hours whichever is met first

