

# NiTek Plus Dive Computer

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## User Guide



Date of purchase: \_\_\_\_\_

**[www.diverite.com](http://www.diverite.com)**



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### Summary

This chapter provides an overview of the NiTek Plus, lists the NiTek Plus's features and functions, and covers warning information that should be read before using your NiTek Plus.

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## Overview

Congratulations on your purchase of the NiTek Plus dive computer. The NiTek Plus is a sophisticated and comprehensive dive computer that was designed to offer you the latest in dive computer technology, safety, and reliability.

The NiTek Plus dive computer is a multifunctional computer for recreational diving, providing information on depth, dive times, no-decompression and decompression times, and nitrogen and O<sub>2</sub> absorption and elimination during all dive phases, including ascent, surface interval times, and subsequent dives.

This information is displayed on an easy-to-read display, providing simple and direct communication between the diver and the computer. With an easy-to-read display, the diver has no problem following and reading the displayed information.

The NiTek Plus comes standard with a number of modes, including a time mode, dive set mode, dive plan mode, log mode, profile mode, PC transfer mode, and dive mode.

**Note:** It is extremely important that you carefully read and understand this manual. Make sure you fully understand how the NiTek Plus operates before diving with it.

This manual has been divided into three chapters:

- **Introduction:** Covers the features and functions, specifications, and warnings for the NiTek Plus
- **Using the NiTek Plus:** Covers the operation of each mode for the NiTek Plus
- **Care and maintenance:** Covers how to properly care for and maintain the NiTek Plus

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## Features and functions

The NiTek Plus incorporates a number of important modes and features:

- The NiTek Plus turns on automatically upon descent
- On the surface, the NiTek Plus constantly displays a minimum of date and time
- The NiTek Plus is capable of displaying two different times through an alternate time display mode
- The NiTek Plus uses easily accessible and highly reliable push buttons instead of exposed electrical contacts
- The NiTek Plus can be programmed to monitor exposure to two different gas mixtures during a dive. Mix1 is programmable for mixtures ranging from air (EAN21) to EAN50. Mix2 is programmable for mixtures ranging from air (EAN21) to EAN99. Underwater, NiTek Plus users can switch between mixes at the push of a button.
- The NiTek Plus is capable of functioning up to a depth of 328 feet (100 meters) when in dive computer mode and 656 feet (200 meters) when in gauge mode
- The NiTek Plus automatically adjusts for altitudes up to 19,680 feet (6,000 meters)
- The NiTek Plus displays a variety of data underwater including: date, time of day, current and maximum depths, no-decompression dive time elapsed and remaining, and water temperature
- The NiTek Plus displays data specifically related to the use of Enriched Air Nitrox (EANx) including: fraction of oxygen (FO2) setting, partial pressure of oxygen (PO2), and an oxygen limit index (OLI) representing the cumulative effect of a diver's exposure to elevated PO2s (the theoretical "CNS clock") as a bar graph
- Through a combination of audible and visible alarms, the NiTek Plus helps to alert the diver to a number of possibly hazardous situations including: violation of ascent rate, no-decompression state, and whether mandatory decompression

## Introduction

stops are necessary or if the diver has ascended above a mandatory stop ceiling. Nitrox specific warnings occur when the diver approaches or exceeds a limiting PO<sub>2</sub> of 1.4 atmospheres for mix1 and 1.6 atmospheres for mix2, and when cumulative exposure to elevated PO<sub>2</sub>s exceeds recommended limits.

- The NiTek Plus can calculate decompression stop requirements for stops as deep as 90 feet (27 meters)
- The NiTek Plus can be programmed to display data in Imperial or metric units
- Dive depth can be displayed in fresh or salt water equivalents
- Special mode indicators makes it easy to determine what display mode or screen you are in at any time
- The NiTek Plus has a back light to illuminate the screen, which can be turned on with the touch of a button in surface and dive mode
- The NiTek Plus's memory capability enables it to hold and display log data on up to 30 hours of dive time or 60 dives
- Detailed dive-profile information can be stored for each dive through user-programmable sample intervals of 15 or 30 seconds (longer intervals allow data for a greater number of dives)
- Dive data can be uploaded and stored in a dive log format on a desktop or laptop computer using the NiTekLogic™ software and optional PC interface



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## Specifications

Algorithm: Buhlmann ZH-L16

Sample tissues: 9

Tissue half-lives: from 5 to 640 minutes

Size and weight

Diameter: 2 in (5 cm)

Height: 0.6 in (1.5 cm)

Weight: 4 ounces (115 g)

Display face

Backlight illumination

Low battery indicator

Four user buttons

Water immersion switch

Depth sensor

Sea water calibration (fresh water depths are about 3% lower)

Measuring range: 0 to 325 feet (0 to 99 m) measured every second

(Gauge mode 656 feet (200 m)

Accuracy: +/- 3% + 2 feet (0.5 m)

Surface interval time: from 0 to 48 hrs

Diving time: from 0 to 599 minutes

Ascent rate warning: 26 to 59 feet per minute (8 to 18 m)

Thermometer

Measuring range: 23 °F to 104 °F (-5 to 40 °C)

Accuracy: +/- 4 °F (2 °C)

Measurement interval: Every minute

Clock

Accuracy: +/- 30 sec on average per month

24-hour display

Altitude

Altitude function monitoring: from 0 to 19,680 feet (6,000 m)

measured every 10 minutes

Accuracy: +/- 800 feet (250 meters)

Battery

Li/MnO<sub>2</sub> CR 2032 3V button battery

Average battery life: About 3 years (50 dives/year)

Replacement: Must be returned to manufacturer

Breathing gas

Mixes: 2 gas settings

O<sub>2</sub> setting range: Mix1 21 to 50 percent, Mix2 21 to 99 percent

O<sub>2</sub> setting: 1% increments

Dive log

Dive logging: Maximum of 60 dives at 30 seconds

Profile logging: Maximum of 30 hours at 30 seconds

Profile sampling rates: 15 or 30 seconds

## Warnings

This information has been developed for your safety. Please read and understand this manual completely before using your NiTek Plus dive computer.

Important safety information:

- Before using your NiTek Plus, it is extremely important that you read the following points—as well as similar warning and caution notices that appear throughout this manual. Failure to do so could result in damage to or loss of equipment, serious personal injury, or death.
- The NiTek Plus is designed for use by certified divers who have maintained a sufficient level of knowledge and skill proficiency through a combination of formal training, ongoing study, and experience. It is not intended for use by persons who lack these qualifications and thus, may not be able to identify, assess, and manage the risks scuba diving entails. Use of the NiTek Plus in conjunction with Enriched Air Nitrox (EANx) requires that divers be trained and certified for Nitrox diving.
- The NiTek Plus is not intended for use by commercial or military divers whose activities may take them beyond the commonly accepted depth limits for recreational or technical diving.
- Although the NiTek Plus is capable of calculating decompression stop requirements, users must remember that dives requiring mandatory stage decompression carry substantially greater risk than dives made well within no-decompression limits.
- The NiTek Plus is designed for use by one diver at a time. Divers should not share a single NiTek Plus—or any other dive computer—on the same dive. Additionally, no diver should lend their NiTek Plus to anyone else until it calculates that no measurable residual nitrogen remains after previous dives and no longer displays the “desaturation time” indicator while in time mode. Further, no diver should use their NiTek Plus for repetitive dives—unless that same properly functioning NiTek Plus has accompanied them on

all previous dives in the same repetitive dive series and is thus, accurately monitoring the diver's total exposure to oxygen and nitrogen.

- Neither the NiTek Plus—nor any other dive computer—physically measures the amount of nitrogen present in body tissues or the rate at which nitrogen is being absorbed or released. The NiTek Plus monitors depth and time, and uses this data to work a mathematical formula designed to emulate how individuals in good general health and whose physical characteristics do not place them among those at higher risk of decompression illness (DCI) are assumed to absorb and release nitrogen from body tissues. Thus, the NiTek Plus cannot compensate for factors such as age, obesity, dehydration, cold, or exertion, which are believed to place divers at greater risk of DCI. If these, or similar factors apply to you, use the NiTek Plus—and other dive computers or dive tables—with even greater caution.
- Little is known regarding the exact nature and causes of decompression illness (also known as decompression sickness, DCI, or DCS). Susceptibility to DCI may vary substantially from person to person and from day to day. Neither the NiTek Plus—nor any other dive table or computer—can guarantee that you will not suffer decompression illness. Even though you use these items correctly, you may still suffer DCI. Use your NiTek Plus conservatively and in conjunction with other dive planning devices, such as dive tables. Do not rely on the NiTek Plus, or any similar device, as your sole means of avoiding decompression illness.

## **When diving...**

- Do not “push” the no-decompression limits (NDLs). Make safety stops before ascending. If you exceed the no-decompression limits, check your breathing gas supply at all stop depths.
- The NiTek Plus does not monitor breathing gas supply. You must monitor this yourself, on every dive, using a submersible pressure gauge or equivalent device.

## Introduction

- Do not rely solely on this or any other dive computer. Take a back-up dive computer or dive tables (along with a separate means of monitoring depth and dive time).
- Be aware that the NiTek Plus makes assumptions regarding residual nitrogen based on altitude settings. Avoid making abrupt changes in altitude following a dive, as doing so may be very dangerous.

## Chapter 2

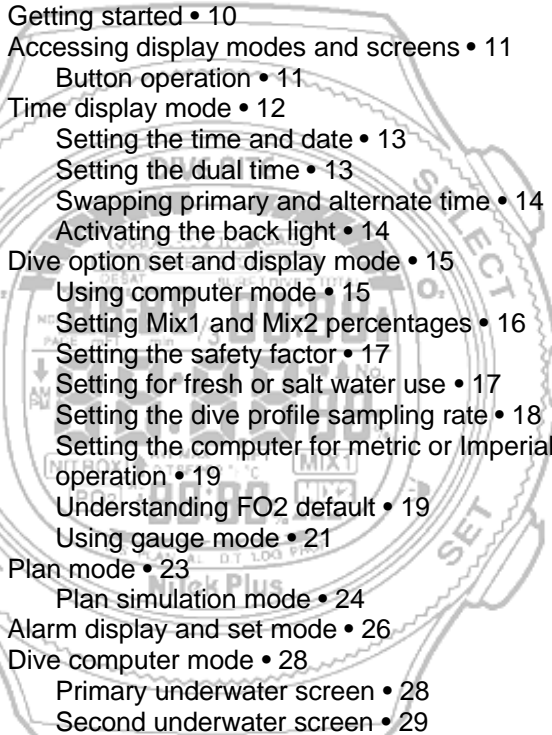
# Using the NiTek Plus

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### Summary

This chapter provides topics about using, setting, and understanding each of the modes and options of the NiTek Plus.

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## Getting started

The NiTek Plus has many modes and screens and a number of options that can be changed depending on your dive location and profile. The following is a checklist of general things that you should pay attention to before, during, and after a dive.

### Before a dive

- Check that the proper time and date are set. If you traveled, your NiTek Plus may be set to your home time zone.
- Check that the proper mixes are set for mix1 and mix2. If you are using gauge mode, make sure it is set to “gage.”
- Make sure that you review the dive plan mode for maximum depths and times for the mixes you are using

### During a dive

- Monitor the NiTek Plus throughout your dive for depth and time
- Monitor the N2 and O2 loading bar graphs
- Pay attention to any alarms, such as an ascent rate warning
- Follow the no-decompression limits or complete the required decompression displayed and perform the necessary safety stop

### After a dive

- Monitor surface interval time if making another dive
- Follow the no-fly requirements
- Review your dive using the log mode and profile mode
- Download the dive log to your PC if you have the optional PC interface

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## Accessing display modes and screens

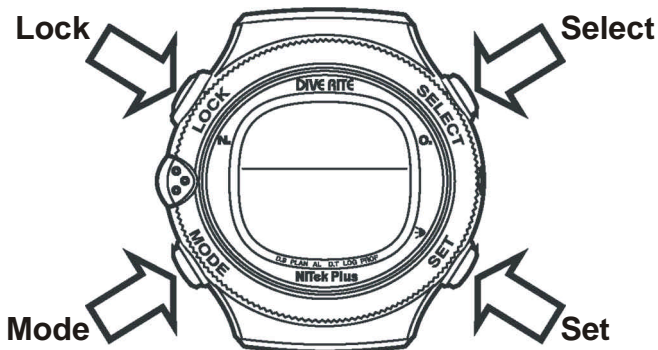
There are some display modes that the NiTek Plus enters and/or exits automatically. For example, by taking the NiTek Plus underwater, the dive mode automatically turns on. Upon surfacing, the NiTek Plus automatically enters the time mode.

Accessing other modes or screens requires the use of the NiTek Plus's buttons.

### Button operation

The NiTek Plus has four buttons (lock, select, mode, and set), which are used to access the different modes and screens. To use the buttons, simply press the button once or hold the button down depending on what you are trying to do. What procedure to use is clearly defined in each topic throughout the manual.

- **Lock button:** This button is used to “unlock” a mode so that options can be changed and “lock” a mode when changes are complete
- **Select button:** This button is used to select the option field that you want to change
- **Mode button:** This button is used to select and scroll through the different modes, such as time mode
- **Set button:** This button is used to set an option's setting, such as setting the date



The front of the NiTek Plus, showing the four buttons that are used to access and setup the different modes and options

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## Time display mode

Time display mode is the NiTek Plus's default mode. The computer returns to this mode automatically upon surfacing from a dive and from other modes when a period of time has passed without any buttons being pressed.

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**(1) Day of week:** This is the day of the week (Sunday through Saturday) expressed as a two-letter abbreviation.

**(2) Time of day:** This is the time of day expressed in hours, minutes, and seconds. Time can be displayed in 24-hour (military) format (as shown) or 12-hour format. When in 12-hour format, an A or P appears on the screen, indicating that it is AM or PM.

**(3) Dual time:** This is an alternate time that can be set for a different time zone (see “Setting an alternate time”). Alternate time only appears if it has been set for a time different than the primary time. A “D.T.” (dual time) is displayed next to the alternate time when an alternate time is set.

**(4) Date:** This is the month and day. The first digit is the month and the second digit is the day. For example, 6-26 represents the twenty-sixth day of June.

**Note:** The NiTek Plus may display additional information concerning exposure to nitrogen and oxygen, desaturation time, surface interval time, and altitude. These items are covered in “Surface mode” and “Altitude operation.”



## Setting the time and date

Setting the time and date are done in the time set mode. You can enter or change the year, month, day, hours, minutes, and seconds in this mode.

### To set the time and date:

---

1. Press Lock while in time display mode.

The “alternate time” field flashes.

**Note:** To set the alternate time or to swap the primary time with the alternate time, see “Setting an alternate time” or “Swapping primary and alternate time.”

2. Press Select to select the seconds field.

The “seconds” field flashes.

3. Press Set to “00” the seconds field or press Select to select another field, such as the minutes field.
4. Using Select and Set, set the year, month, day, hour, minutes, seconds, and whether you want the time displayed in 24-hour format.

For example, 1:00 PM would be 13:00.

5. Press Lock.

The computer returns to the time display mode.

## Setting the dual time

The NiTek Plus has the ability to display two different times, which can be set for two different time zones.



### **To set an alternate time:**

---

1. Press Mode until the arrow points to D.T. at the bottom of the screen.
2. Press Select.  
The alternate time field “hour” flashes.
3. Press Set to change the hour.
4. Press Select to select the minutes field.
5. Press Set to change the minutes.
6. Press Lock.
7. Press Mode.

The computer returns to the time display mode.

### **Swapping primary and alternate time**

You can swap the primary time field with the alternate time. This is useful when traveling to a different time zone. The local time can be displayed in the primary time field and the time zone you traveled from can be displayed in the alternate time field. This allows you to monitor the time in both time zones.

### **To swap primary and alternate time:**

---

1. Press Mode until the arrow points to D.T. at the bottom of the screen.
2. Press Select to swap alternate and primary times.

### **Activating the back light**

The NiTek Plus has a back light that illuminates the screen.

### **To activate the back light:**

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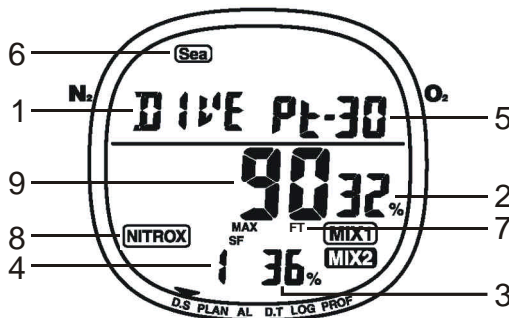
1. Press Set.  
The back light illuminates for four to five seconds.
2. Press Set again to reactivate the back light.

## Dive option set and display mode

Dive option set and display mode is where all “dive” option settings are displayed and set up.

### Using computer mode

Computer mode is when the NiTek Plus is operating in the normal computer mode. “Dive” is displayed on the screen and all computer mode functions operate normally. The dive option set and display mode is used to review and change option settings that pertain to an upcoming dive. The operating depth limit when in dive operation is 328 feet (100 meters).



#### Dive option display and set fields

- (1) Dive operation
- (2) Mix1 FO2 gas percentage
- (3) Mix2 FO2 gas percentage
- (4) Dive safety factor
- (5) Dive log profile sampling rate
- (6) Salt or fresh water use

There are three “display only” option fields that change based on how the above settings are set.

- (7) Metric or Imperial units of measurement
- (8) Nitrox indicator: “Nitrox” is displayed if mix1 is set for a FO2 of greater than 21 percent. If mix1 is set for 21 percent (air), nothing appears. If mix1 is in “default,” the Nitrox

indicator flashes. For more information on “default,” see “Understanding FO2 default.”

- (9) Maximum operating depth (MOD) for FO2 setting: This is the safe operating depth (maximum) for the selected mix. These are based on limiting PO2 factors of 1.4 and 1.6 atmospheres respectively.

### **To enter dive operation:**

---

1. Press Mode until the arrow points to D.S. at the bottom of the screen.
2. Using the topics that follow, set up your desired dive option settings.

## **Setting Mix1 and Mix2 percentages**

You must set the breathing mix you plan on using on your dive. Mix1 is considered the first breathing gas you plan on using during a dive, and mix2 is considered the second breathing gas you are using on a dive.

- Mix1 can be set for 21 to 50 percent oxygen
- Mix2 can be set for 21 to 99 percent oxygen

**Note:** If you only plan on using one mix on your dive, you only need to set mix1.

### **To set mix1 and mix2 percentages:**

---

1. Press Mode until the arrow points to D.S. at the bottom of the screen.
2. Press Lock.
3. Press Select to select mix1.

Mix1 flashes.

4. Press and release Set to increment the percentage.

Press and hold Set to advance the percentages rapidly. The percentage will stop at 32 percent and again at 50 percent.

5. Press Select to advance to mix2.

6. If *you are* entering a percentage for mix2, press and release Set to increment the percentage. If *you are not* setting a percentage for mix2, press Select to advance to the safety factor setting.

Press and hold Set to advance the percentages rapidly. The percentage will stop at 32 percent and again at 21 percent.

7. When finished, press Select to advance to the next option (safety factor) or press Lock.

## Setting the safety factor

The safety factor setting is used to add an additional safety margin to the no-decompression limits and decompression stop times. There are two possible settings, 0 and 1. Setting the safety factor to 1 results in shorter no-decompression limits and longer decompression stop times.

| Setting | Description  |
|---------|--|
| 0       | Calculations are based solely on its built-in algorithm (Buhlmann ZH-L16)          |
| 1       | Calculations are based on one altitude rank higher than the dive was actually made |

### To set the safety factor:

1. Press Mode until the arrow points to D.S. at the bottom of the screen.
2. Press Lock.
3. Press Select until the safety factor field is flashing.
4. Press Set to select the desired safety factor.
5. When finished, press Select to advance to the next option (salt or fresh water use) or press Lock.

## Setting for fresh or salt water use

The NiTek Plus is capable of operating using fresh or salt water calculations. This is based on:

- One atmosphere of saltwater is 33 feet (10 meters)

## Using the NiTek Plus

- One atmosphere of freshwater is 34 feet (10.3 meters)

Before going diving, set the computer to the type of water you are diving in. This allows for the most accurate calculations with respect to no-decompression limits, etc.

### To set for fresh or salt water use:

---

1. Press Mode until the arrow points to D.S. at the bottom of the screen.
2. Press Lock.
3. Press Select until “fresh” or “sea” is flashing.
4. Press Set to toggle between fresh and sea water.
5. When finished, press Select to advance to the next option (dive profile sampling rate) or press Lock.

## Setting the dive profile sampling rate

The NiTek Plus allows you to choose how frequently it samples and stores depth data. The data it samples and stores is used in profile mode or when the data is uploaded to a personal computer. There are two sampling rates to choose from, 15-second and 30-second.

The 15-second sampling rate enables the computer to sample and store depth data every 15 seconds during a dive. The 15-second sampling rate provides a more detailed dive profile, but because it stores more information, fewer dives can be stored.

The 30-second sampling rate enables the computer to sample and store depth data every 30 seconds during a dive. The 30-second sampling rate is the computer’s “default” setting. The 30-second rate provides a less detailed dive profile, but it is capable of storing more information for more dives.

**Note:** When the computer’s memory storage is full, it overwrites the oldest dive profile data stored with the new information.

### To set the dive profile sampling rate:

---

1. Press Mode until the arrow points to D.S. at the bottom of the screen.

2. Press Lock.
3. Press Select until the sampling rate “number” is flashing.
4. Press Set to toggle between 15- and 30-seconds.
5. When finished press Lock.

## **Setting the computer for metric or Imperial operation**

The NiTek Plus can calculate and give you values in Imperial units or metric units. When in Imperial, depth values are expressed in feet and temperatures are expressed in Fahrenheit (°F). When in metric, depth values are expressed in meters and temperatures are expressed in Celsius (°C).

### **To set for metric or Imperial operation:**

---

1. Press Mode until the arrow points to Plan at the bottom of the screen.
2. Press and hold Lock for 5 to 6 seconds.  
The computer beeps and changes between feet (FT) and meters (M).

## **Understanding FO2 default**

In your entry-level Enriched Air Nitrox training, you learned that among the greatest risks Nitrox (EANx) use poses is CNS oxygen toxicity. One of the ways CNS oxygen toxicity can occur is when Nitrox is breathed at depths where the partial pressure of oxygen (PO<sub>2</sub>) exceeds safe limits.

The NiTek Plus is designed to help divers avoid such situations by presenting information and warnings regarding current PO<sub>2</sub> levels and cumulative exposure to elevated PO<sub>2</sub>s. To do so, the NiTek Plus must be set to an FO<sub>2</sub> that accurately matches the concentration of oxygen in the gas mixture being breathed.

Similarly, the NiTek Plus is designed to help divers avoid decompression illness by providing no-decompression limits (NDLs) or mandatory decompression stop information. Again, to do so, the NiTek Plus must be set in a manner that accurately matches the concentration of nitrogen being breathed.

## Using the NiTek Plus

When this information is not available, the NiTek Plus attempts to protect divers by basing its oxygen- and nitrogen-exposure calculations on a “worst case” assumption. Worst case is a mixture containing up to 79 percent nitrogen and 99 percent oxygen. This “worst case” calculation is what is referred to as the FO2 default setting.



Default warning indicated by Nitrox flashing

### When and how FO2 default occurs

One factor in determining if and when your NiTek Plus’s FO2 setting is in default, is whether you set one or both mixes for air or Nitrox.

- If you set either mix for air (an FO2 of 21 percent), the computer assumes that subsequent dives will be made using air. This means that the mix set for air remains set for air, dive after dive, without defaulting.
- If you set either mix for anything other than air, the computer assumes that subsequent dives will be made on Nitrox. Thus, to protect you from accidentally diving a Nitrox mixture that cannot accurately be monitored, the computer’s FO2 setting defaults at midnight (it does not default at midnight if you are under water).

### Dealing with FO2 default

The best way to deal with FO2 default is to simply avoid it. The way to avoid it is, make sure that prior to every dive you check



the FO2 settings for mix1 and mix2. Make sure they accurately match what you are going to breathe during the dive.

When the computer is in FO2 default mode, the Nitrox symbol flashes. This indicates that you need to set the percentages for mix1 and mix2 to the correct FO2.

If you go diving when the computer is in FO2 default mode, the OLI and PO2 symbols, current depth, and PO2 value flash. The computer's ability to accurately monitor your exposure to oxygen no longer exists.

**Note:** You should not rely on the NiTek Plus as the sole means of tracking your exposure to elevated partial pressures of oxygen (PO2s). It is recommended that you use either a second Nitrox-capable computer or another tracking method, such as Nitrox tables.

## Using gauge mode

If you do not want to use the NiTek Plus as a normal “dive computer,” the NiTek Plus has a gauge mode. Gauge mode is when the NiTek Plus is operating simply as a depth gauge and bottom timer. “Gage” is displayed on the screen and exposure to nitrogen and oxygen and no-decompression limits are not tracked and no bar graphs are displayed. This mode is used by divers who are relying solely on dive tables for decompression information. The operating depth limit when in gauge operation is 656 feet (200 meters).



**Note:** You cannot select gauge operation if the computer calculates that there is still residual nitrogen remaining from a previous dive. Also, you cannot return to dive computer operation until 48 hours have passed since your last dive.

## Using the NiTek Plus

In gauge mode, you can still set the profile sampling rate and salt or fresh water use. For more information on these options, see “Dive option set and display mode.”

### **To select and setup gauge operation:**

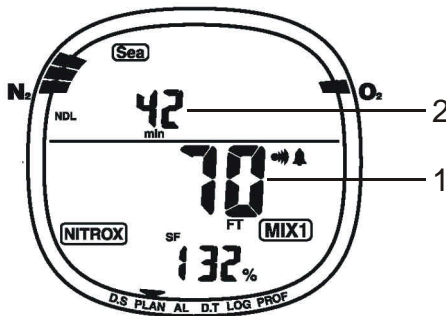
---

1. Press Mode until the arrow points to D.S. at the bottom of the screen.
2. Press Lock.  
“Dive” flashes.
3. Press Set to select gauge operation.  
“Gage” is displayed and is flashing.
4. Press Select to set for salt or fresh water use. Press Set to toggle between “sea” and “fresh.”
5. Press Select to set the profile sampling rate. Press Set to select 15-second or 30-second.
6. Press Lock.

## Plan mode

Plan mode enables you to determine how long you can stay at various depths while remaining within the no-decompression limits. The no-decompression time limits are based on the percentage that is set for mix1. If you are making a dive within 24 hours of a previous dive, the no-decompression time limits are based on the residual nitrogen remaining.

The two most important values that are displayed on the screen in plan mode are the depth and no-decompression time limit.



**(1) Depth:** When you first enter plan mode, the initial depth displayed is 30 feet (9 meters). You can advance the depth in 10 foot (3 meter) increments. Fourteen different dive plan depth increments can be displayed to a maximum depth of 160 feet (48 meters).

**(2) No-decompression limit (NDL):** Depending on the depth displayed and the current FO<sub>2</sub> setting, the available no-decompression limit, up to a maximum of 200 minutes, is displayed. If the computer is in FO<sub>2</sub> default, a series of horizontal lines appear.

If the NiTek Plus calculates that there is residual nitrogen present from previous dives, the available no-decompression limits are shorter. Depending on how much residual nitrogen is present, no NDL time may be displayed for some deeper depths. If this takes place, a series of horizontal lines are displayed. Similarly, for combinations of depth and FO<sub>2</sub> that would cause a diver to

exceed a limiting PO<sub>2</sub> of 1.6 atmospheres, a series of horizontal lines appears in place of the no-decompression limit.

### To enter plan mode:

---

1. Press Mode until the arrow points to PLAN at the bottom of the screen.
2. Press Select to advance the depth or press Set to decrease the depth.

The no-decompression time limits change automatically based on the depth.

---

---

**WARNING:** Do not plan dives to depths deeper than those for which the NiTek Plus is capable of displaying an available no-decompression limit. Doing so could cause you to exceed the no-decompression limits or a limiting PO<sub>2</sub> of 1.4 atmospheres (1.6 atmospheres for deco). This may increase your risk of decompression illness or CNS oxygen toxicity and can lead to serious personal injury or death.

---

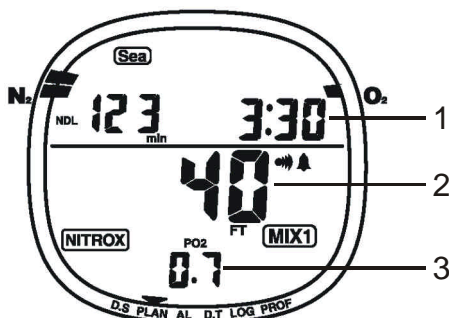
---

## Plan simulation mode

The NiTek Plus allows you to simulate a dive plan based on residual nitrogen, surface interval time, and depth. This gives you information about how long you can stay at various depths while remaining within the no-decompression limits.

**Note:** You can only enter plan simulation mode if the computer calculates that there is residual nitrogen in your system.

---



**(1) Surface interval time:** This is the amount of time between dives you plan on waiting. The no-decompression limits are based on this time period. The longer the surface interval time, the longer the no-decompression limit time.

**(2) Depth:** This is the depth used to plan the dive.

**(3) PO2:** This is the PO2 for mix1 at the depth displayed.

**To enter plan simulation mode:**

---

1. Press Mode until the arrow points to PLAN at the bottom of the screen.
2. Press Lock.
3. Press Select to increase the surface interval time by 30 minutes.
4. Press Set to increase the depth by 10 feet (3 meters).
5. Press Lock.

---

## Alarm display and set mode

The NiTek Plus has the ability to sound daily and hourly alarms. A daily alarm is one that goes off at a specific time every day. When set, the daily alarm beeps twice every second for twenty seconds unless you press one of the computer's four buttons. This turns off the alarm before the twenty seconds expire.

An hourly alarm is one that goes off at the beginning of every hour. When set, the hourly alarm beeps once on the hour.

---



---

**(1) Daily and hourly alarm on/off symbols:** When the alarm symbol is displayed the daily alarm is turned on. When the bell symbol is displayed, the hourly alarm is turned on.

**(2) Daily alarm setting:** This is the time that the daily alarm sounds each day.

### To turn on the daily and hourly alarms:

---

1. Press Mode until the arrow points to AL at the bottom of the screen.
2. Press Select to toggle the daily and hourly alarms on and off.  
The symbols turn on or off as you press Select.

### To set the daily alarm time:

---

1. Press Mode until the arrow points to AL at the bottom of the screen.
2. Press Lock.

The “hour” field flashes.

3. Press Set to set the “hour” time.
4. Press Select.

The “minutes” field flashes.

5. Press Set to set the “minutes” time.
6. Press Lock.

**Note:** The daily alarm symbol automatically turns on when you set an alarm time.

---

## Dive computer mode

Dive computer mode is automatically entered when the computer enters the water. It begins performing its dive calculations once you descend below 5 feet (1.5 meters).

---

**Caution:** Prior to diving, always check to ensure that the FO2 settings are correct and that the computer is not in FO2 default.

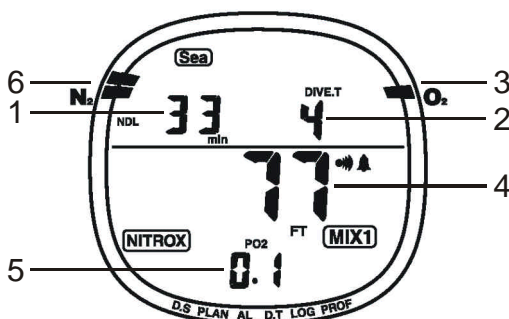
---

While in computer mode, the computer calculates and displays information about your dive and prompts you with safety stop information and warnings if needed.

While underwater, there are three screens you can toggle between, and you can switch from mix1 to mix2 when needed. You can also activate the back light feature.

## Primary underwater screen

When you enter the water, the primary screen shows your depth, remaining no-decompression limit, dive time, PO2 for selected mix, and the N2 and O2 bar graphs.



**(1) Remaining no-decompression limit (NDL):** This is the time that is remaining (in minutes) before you reach the no-decompression limit. This NDL time limit increases when you ascend and decreases when you descend.

**(2) Dive time:** This is the time spent (in minutes) underwater, measured from the time you descended below 5 feet (1.5 meters).



**(3) O<sub>2</sub> (OLI) bar graph:** This is the oxygen limit index (OLI) that calculates the cumulative effect of your exposure to elevated partial pressures of oxygen (PO<sub>2</sub>s). There are a maximum of eight bars. When all bars are displayed, it means that you have used 100 percent of your “CNS” clock. This graph increases when you descend due to higher partial pressures and may decrease when you ascend.

**(4) Depth:** This is the current depth.

**(5) PO<sub>2</sub>:** This is the partial pressure of O<sub>2</sub> at your current depth. It is based on the FO<sub>2</sub> settings for mix1 or mix2.

**(6) Residual nitrogen (N<sub>2</sub>) bar graph:** This is how much nitrogen the computer assumes your body has absorbed. There are a maximum of nine bars. When all bars are displayed, it means that you are at or have exceeded the no-decompression limits.

## Second underwater screen

While underwater, you can change to the second diving mode screen that displays additional information. When you switch screens, temperature and maximum depth are displayed.



**(1) Temperature:** This is the lowest temperature that has been reached during the dive.

**(2) Maximum depth:** This is the maximum depth that has been reached during the dive.

### To display the second diving mode screen:

---

1. Press and hold Select.

The back light turns on, and the second screen is displayed.

2. Release Select to return to the primary diving mode screen.

### Third underwater screen

While underwater, you can change to the third diving mode screen that displays additional information. When you switch screens, FO2 and time of day are displayed.



**(1) FO2 setting:** This is the FO2 setting for the gas mix that is selected.

**(2) Time of day:** This is the current time of day.

### To display the third diving mode screen:

---

1. Press and hold Mode.

The back light turns on, and the third screen is displayed.

2. Release Mode to return to the primary diving mode screen.

### Changing gas mixes underwater

Because the NiTek Plus has the ability to use two different gas mixes during a dive, you need the ability to switch between mix1 and mix2 while underwater. When you switch mixes, the PO2 adjusts to reflect the current mixture you are breathing.

**Note:** Only switch gas mixes when you have reached the safe operating depth limit for the gas you are switching to.



### To change gases underwater:

1. Press and hold Lock for two to three seconds.

If you are using mix1, mix2 flashes and is displayed. If you are using mix2, mix1 flashes and is displayed.

2. Release Lock to return to the primary diving mode screen.

### Safety stop indication

The NiTek Plus has an automatic three-minute safety stop feature built in. On any dive, when you descend below 33 feet (10 meters) and then ascend above 20 feet (6 meters), “safety stop” is displayed and the NDL changes to a three-minute countdown.

During this time, if you ascend above 10 feet (3 meters), the countdown pauses. It resumes when you descend back below 10 feet (3 meters). If you descend below 20 feet (6 meters) during this time, “safety stop” and the three-minute countdown disappear; the NDL readings reappear. When you again ascend above 20 feet (6 meters), the three-minute countdown restarts.



---

Safety stop indication and time countdown

## Warnings while in diving mode

While in diving mode, there are several warnings that you should be alert to.

- Default warning
- Ascent rate warning
- PO2 limit warning
- Oxygen limit index (OLI) warning
- Decompression warning
- Decompression stop violation warning
- Out-of-range warning

### Default warning

If either mix1 or mix2 is in default at the beginning of a dive, an audible alarm sounds for three seconds. If you ascend and set the mix percentages, you can restart the dive. The Nitrox symbol also flashes, which is the best indication that the computer is defaulted before entering the water.



Default warning indicated by Nitrox flashing

### Ascent rate warning

The NiTek Plus assumes that you keep your ascent rate within the following limits:

| Depth range                      | Ascent rate                    |
|----------------------------------|--------------------------------|
| 0 to 19 feet (0 to 5.9 meters)   | 26 feet (8 meters) per minute  |
| 20 to 58 feet (6 to 17.9 meters) | 39 feet (12 meters) per minute |
| 59 feet (18 meters) or deeper    | 52 feet (16 meters) per minute |

If you exceed these ascent rates, an audible alarm sounds for three seconds and “slow” is displayed and flashes on the screen. The warning displays until you slow your ascent to an acceptable rate or you reach 5 feet (1.5 meters). If the ascent rate is violated twice, the “slow” symbol appears in log mode after the dive.

### PO2 limit warning

The PO2 warning indicates that you have exceeded the 1.4 atmospheres and/or 1.6 atmospheres for the gas you are breathing. If you are using mix1 and exceed a PO2 of 1.4 atmospheres, an audible alarm sounds for three seconds, and the PO2 value, PO2 symbol, and current depth blink. If you exceed a PO2 of 1.6 atmospheres, in addition to the above audible and visual alarms, the OLI bar graph flashes. If you are using mix2 and exceed a PO2 of 1.6 atmospheres, all visible alarms appear and the audible alarm sounds twice.

**Note:** If the PO2 alarms activate at a depth of 20 feet (6 meters) or less, you most likely have not exceeded the limiting PO2. It is more likely that you forgot to set the FO2 percentages prior to the dive. As a result, the computer has entered the FO2 default. See “Understanding FO2 default” for more information.

### **Oxygen limit index (OLI) warning**

The NiTek Plus’s oxygen limit index (OLI) reflects the cumulative effect of your exposure to elevated partial pressures of oxygen. The PO2 warning only accounts for the intensity of the exposure, but the OLI accounts for both the intensity and length.

When seven of the O2’s eight bars are displayed, the computer’s audible alarm sounds for three seconds, and “OLI” flashes for ten seconds. If you do not ascend to a shallower depth, and all eight of the O2’s bars are displayed, the alarm sounds twice again and “OLI” flashes again. “OLI” continues to flash until the O2 bar graph drops to seven bars. This warning will appear in log mode after the dive.

Should the OLI and PO2 warnings activate at roughly the same time—and at relatively shallow depths, early in the dive—you most likely have not exceeded your actual oxygen limits. What has happened is that you forgot to set the FO2 percentages prior to the dive and the computer has FO2 defaulted. See “Understanding FO2 default” for more information.

### **Decompression warning**

If you exceed the no-decompression limits, the computer enters decompression mode. An audible alarm sounds for three seconds indicating that you have decompression stop requirements.

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**Caution:** Decompression diving is considered to substantially increase your risk of decompression illness more than dives made within no-decompression limits.

---



Decompression warning with “DECO STOP” displayed on the screen

- (1) **Deco stop symbol:** The “DECO STOP” symbol displays indicating that you have to stop at the depth displayed.
- (2) **Required stop depth:** This is the required decompression stop depth.
- (3) **Required stop time:** This is the time you must remain at the indicated stop depth.
- (4) **Total ascent time:** This is the total amount of time (in minutes) you must spend at the decompression stops and the ascent time between decompression stops.
- (5) **Nitrogen (N2) bar graph:** This is how much nitrogen the computer assumes your body has absorbed. There are a maximum of nine bars. When all bars are displayed, it means that you are at or have exceeded the no-decompression limits and have entered decompression.

### Decompression stop violation warning

A decompression stop violation warning takes place when you ascend to a shallower depth than the indicated stop depth or if you do not spend sufficient time at the required depth before ascending. When you enter this violation, the computer’s audible alarm sounds, and the current depth, stop depth, stop time, and “DECO STOP” flashes. These items continue blinking as long as you remain shallower than the indicated stop depth.

**Note:** During a deco stop violation, the computer's ascent rate warning does not function.

---

**Caution:** If you do not correct an indicated deco stop violation, the warnings continue for several minutes after surfacing. At this point, the computer is not usable for the next 48 hours.

---

### Out-of-range warning

The following can cause the out-of-range warning:

- Descend below the computer's maximum operating depths for computer mode or gauge mode
- Exceed an actual bottom time of 599 minutes
- Accrue decompression stops depths of greater than 90 feet (27 meters)
- Accrue a decompression stop time of more than 99 minutes
- Accrue a total ascent time of over 999 minutes

The out-of-range warning consists of:

- The audible alarm sounds for three seconds
- The entire screen flashes

---

---

**WARNING:** A NiTek Plus displaying an out-of-range warning is incapable of displaying other critical information such as depth, time, ascent rate, PO<sub>2</sub>, OLI and deco stop violations, and required decompression stops. For this reason, you should not, under any circumstance, use a NiTek Plus in such a way that would cause an out-of-range warning. Under such conditions, the risk of serious personal injury or death would be substantial.

---

---



## Gauge mode

When selected, gauge mode is automatically entered when the computer enters the water. It begins displaying depth and time once you descend below 5 feet (1.5 meters).

**Note:** To enter and set up gauge mode operation, see “Using gauge mode.”

While in gauge mode underwater, there are three screens you can toggle between. The primary screen displays depth and time. The second screen displays maximum depth and temperature, and the third screen displays time of day.

### To toggle between screens underwater:

---

1. Press and hold Select to see maximum depth and temperature screen.
2. Press and hold Mode to see the time of day screen.
3. Release buttons to return to the primary screen.

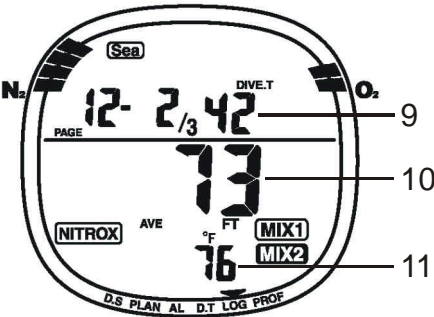
# Log mode

For each dive, the NiTek Plus stores information, such as depth, time, temperature, etc. in a log. This stored log information can be viewed directly from the NiTek Plus’s screen when in log mode.

Because of the amount of information the NiTek Plus stores, there are three pages that you can toggle between for each dive. Each dive is assigned a number, beginning with one, for the day. Each log page displays the log number and the page number, making it easy for you to toggle between the dive log pages.



Page one for a dive in log mode



Page two for a dive in log mode



Page three for a dive in log mode

- (1) **Log entry number:** This is the sequence in which the log appears. The most recent log entry has the highest number, which began with log one. When the computer's memory is full, the oldest dives are overwritten with the new dives. This causes the log entry number assigned to a particular dive to change.
- (2) **Page number:** This is the log page number. Each dive has three pages of logged information.
- (3) **Dive number:** This is the dive number for a particular day of diving.
- (4) **Date:** This is the month and day of the dive.
- (5) **Descent time:** This is the time you started the dive, indicated by a down arrow.
- (6) **Ascent time:** This is the time you surfaced from the dive, indicated by an up arrow.
- (7) **Nitrogen (N<sub>2</sub>) exposure bar graph:** This is the amount of residual nitrogen in your body at the end of the dive.
- (8) **O<sub>2</sub> OLI bar graph:** This indicates CNS toxicity level at the end of the dive.
- (9) **Dive time:** This is the actual bottom time for the dive.
- (10) **Average depth:** This is the average depth reached during the dive.
- (11) **Temperature:** This is the coldest temperature reached during the dive.

**(12) Max depth:** This is the maximum depth reached during the dive.

**(13) Safety factor:** This indicates what safety factor was set and used for the dive.

**(14) FO2 gas percentages:** These are the FO2 gas percentages that you entered for the dive. All calculations were based on these percentages.

### **To view a dive log:**

---

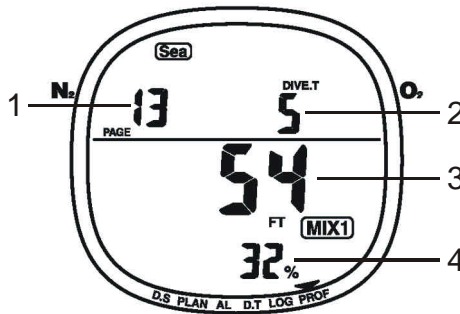
1. Press Mode until the arrow points to LOG at the bottom of the screen.
2. Press Set to scroll “down” through the logged dives. To fast scroll, press and hold Set.  
Press Select to scroll “up” through the logged dives. To fast scroll, press and hold Select.
3. Once a dive log is selected, you can use Set and Select to toggle between pages of the dive log.

## Profile mode

Profile mode enables you to see a record of the depths you reached at various points during a dive. You can display a detailed profile of each dive stored in the log. When a dive is selected, the computer automatically displays the depth and the time in the dive when you reached that depth until it reaches the end of the dive.

Dive profile information is either stored in 15- or 30-second intervals during a dive. This must be set in dive mode before a dive. Refer to “Setting the dive profile sampling rate” for more information.

The dive number and date of the dive are displayed when you scroll through the dives. This makes it easy to find the dive profile you want to view.



**(1) Dive log entry number:** This is the dive number that corresponds to the dive number when in log mode.

**(2) Dive time:** This tells you at what time during the dive you reached the depth indicated.

**(3) Depth:** This is the depth that corresponds to the displayed dive time. Depending on what profile sampling rate you have set, either two depth readings (30-second rate) or four depth readings (15-second rate) are displayed for each minute during a dive.

**(4) FO2 percentage:** This shows the mix number and FO2 percentage of the gas being used at each point during the dive.

**To view a dive profile:**

---

1. Press Mode until the arrow points to PROF at the bottom of the screen.
2. Press Select to scroll “down” through the logged dives. To fast scroll, press and hold Select.
3. Once a dive profile is selected, the computer automatically progresses through the different depths and times of the dive.  
  
Press and hold Set to pause at a certain depth/time. Release Set to continue progressing through the dive.

## PC transfer mode

If you purchased the optional NiTek Plus Docking Station for the NiTek Plus, you can transfer the stored dive log information to your personal computer.

**Note:** For details on using the NiTek Plus Docking Station, refer to the documentation that came with the unit.

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### To enter PC transfer mode:

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1. Press Mode until the arrow points to PROF at the bottom of the screen.
2. Press Lock.  
The computer switches to the PC transfer mode.
3. Transfer the dive log data to your PC.
4. To exit PC transfer mode, press Lock.

---

## Surface mode (upon surfacing from a dive)

Once you surface from a dive, the NiTek Plus automatically switches to time mode. In addition to the normal information displayed in time mode such as time of day, there is other information that is displayed that pertains to the dive you just completed. This includes:

- Nitrogen (N<sub>2</sub>) bar graph
- Oxygen limit index (OLI) bar graph

Additional information is displayed on a second screen about the dive, which includes:

- Desaturation time
- Surface interval time

This information is displayed on both screens until the NiTek Plus calculates that it is no longer needed or after 24 hours have passed since the last dive.

**Note:** If you are making repetitive dives, you need to pay attention to your surface interval and use it in conjunction with plan mode. This ensures that you stay within no-decompression limits.



**Note:** The diagram above shows the information that is displayed on each screen.

**(1) Surface interval time:** This is the amount of time you have spent on the surface since your last dive if there is residual nitrogen present from a previous dive. It can display up to 24 hours of surface interval time.



**(2) Desaturation time:** This is the amount of time, expressed in hours and minutes, that must pass before the residual nitrogen levels drop to a point where subsequent dives are treated as a single (non-repetitive) dive. This is not the same as “time to fly.”

**(3) O2 OLI bar graph:** This indicates CNS toxicity level at the end of the dive. This drops as your surface interval time increases.

**(4) Nitrogen (N2) exposure bar graph:** This is the amount of residual nitrogen in your body at the end of the dive. This drops as your surface interval time increases.

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**WARNING:** It is recommended that you wait at least 24-hours following any dive before flying in an aircraft or driving to altitude. Failure to allow sufficient surface interval time before doing so may increase your risk of decompression illness (DCI).

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#### **To view surface interval and desaturation time:**

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1. While in time mode, press and hold Select.

The screen switches showing desaturation time and surface interval time.




2. Release Select to return to time mode.

## Altitude operation

The NiTek Plus adjusts automatically for diving at altitudes of up to 19,680 feet (6,000 meters). To show that the NiTek Plus has made the altitude adjustment, it displays the altitude settings using symbols representing mountains.



### Altitude rank symbols

| Symbol   | Altitude range                                |
|--|---|
| No symbol  | Sea Level to 3,281 feet (1000 meters)         |
|    | 2,297 to 5,906 feet (700 to 1,800 meters)     |
|   | 4,593 to 8,530 feet (1,400 to 2,600 meters)   |
|  | 7,546 to 19,685 feet (2,300 to 6,000 meters)  |
| (Flashing symbols)   | Out of range above 19,685 feet (6,000 meters) |

Prior to using the NiTek Plus at altitudes substantially above sea level, you should find out what the actual altitude of your dive site is. Make certain that the altitude settings the NiTek Plus displays accurately match the altitude you are at.

### Notes

- Do not use the NiTek Plus unless the altitude settings accurately match the actual height above sea level you are

diving in. Doing so could cause the NiTek Plus to display inaccurate information.

- Do not use the NiTek Plus when the symbols are flashing. This means that you are above an altitude of 19,680 feet (6,000 meters), which is beyond the NiTek Plus's ability to function accurately.
- Do not place the NiTek Plus in dive mode when making sudden, substantial changes in altitude, such as when flying in an airplane. This can be caused by storing the NiTek Plus with wet dive gear, which can touch its external electrical contacts and cause it to enter dive mode. This can interfere with the computer's ability to function accurately.

The NiTek Plus monitors and displays altitude information in all modes, except PC transfer mode. Upon arriving at altitude, the NiTek Plus's residual nitrogen bar graph may show that there is excess nitrogen present, even though you may not have made any dives in the preceding 24 hours.

If you have obtained the altitude specialty diver training which everyone should do before diving at altitudes substantially above sea level, you already understand that this should be expected. By ascending to a higher altitude from a lower one, your body has more nitrogen saturated in body tissues than would be present had you spent the preceding 24 hours at the higher altitude. By displaying residual nitrogen and a surface interval, your NiTek Plus is merely reflecting this fact.

If the level of residual nitrogen calculated by the NiTek Plus is unusually high (seven or eight bars) when going to altitude, the computer will be unable to enter dive mode. Avoid taking the computer to altitude when residual nitrogen levels are this high, and do not enter the water until nitrogen levels have dropped substantially.

## Chapter 3

# Care and maintenance

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### Summary

This chapter provides care and maintenance and battery information for the NiTek Plus.

### Content

Proper handling techniques • 50

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Replacing the battery • 52



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## Proper handling techniques

The NiTek Plus is constructed to withstand the most demanding diving conditions. It is, however, a high precision tool, which requires proper care.

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**Caution:** Failure to follow these handling techniques may result in damage to the NiTek Plus.

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- Do not store the computer in hot and/or humid environments. The pressure transducer is sensitive to both heat and humidity. If impaired, it may cause incorrect altitude or depth readings.
- When in hot and/or humid environments, dip the computer in water for several minutes to cool it to room temperature before using it. If it is cold, allow the computer to warm to room temperature. Do not take it underwater immediately after doing so.
- Do not transport your NiTek Plus on an aircraft or take it to altitude while it is sealed in an air-tight container. Doing so may interfere with its ability to correctly read, display, and track depth information.
- The NiTek Plus's Liquid Crystal Display (LCD) may darken if left in a hot environment (such as on a car's dashboard). It will return to normal once allowed to cool, however, extensive exposure to heat may shorten LCD life.
- Be aware that weather-related changes in air-pressure can cause incorrect display of altitude settings. Be sure to check indicated altitude settings against actual altitude before use. Your NiTek Plus is not to be disassembled by anyone other than Dive Rite or its authorized dealers. Unauthorized disassembly will violate the warranty.
- If the NiTek Plus does not appear to be functioning properly, do not use it to dive. Return it to your authorized Dive Rite dealer for repair.
- The NiTek Plus should not come in contact with solvents or any type of chemical substances

## Care and maintenance

- Do not use compressed air to dry the NiTek Plus
- Do not use the NiTek Plus in hyperbaric chambers if the device is not fully submerged in water
- Always rinse the computer with freshwater after use
- Store the NiTek Plus in a cool, dry location. After diving, wipe the computer dry and store it in a location separate from other damp items.

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## Low battery warning

The battery that comes with the NiTek Plus is designed to last for up to three years under normal use. You may get more or less use from the battery depending on how often it is used and how it is cared for.

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### Cautions

- All NiTek Plus functions may cease within two to three days of the low battery symbol first appearing. Always have low batteries replaced promptly.
- A depleted battery that is left in a NiTek Plus for a long period of time may leak. Replace batteries promptly.

**Note:** Once the low battery warning appears, you must return the NiTek Plus to your local authorized Dive Rite dealer for battery replacement. Be sure to upload or copy all dive log data to your logbook before replacing the battery.





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