ATMOS 2

DIVE COMPUTER

OPERATING MANUAL

LIMITED TWO-YEAR WARRANTY

For details, refer to the Product Warranty Registration Card provided.

COPYRIGHT NOTICE

ATMOS 2 Operating Manual, Doc. No. 12-7129
© 2002 Design, 2001
San Leandro, Ca. USA 94577

TRADEMARK NOTICE

PATENT NOTICE

U.S. Patents have been issued, or applied for, to protect the following design features:
Dive Time Remaining (U.S. Patent no. 4,586,136), Data Sensing and Processing Device (U.S. Patent no. 4,882,678), and Ascent Rate Indicator (U.S. Patent no. 5,156,055). User Setable Display (U.S. Patent no. 5,845,235) is owned by Suunto Oy (Finland).

DECOMPRESSION MODEL

The programs within the ATMOS 2 simulate the absorption of nitrogen into the body by using a mathematical model. This model is merely a way to apply a limited set of data to a large range of experiences. The ATMOS 2 dive computer model is based upon the latest research and experiments in decompression theory. **Still, using the ATMOS 2, just as using the U.S. Navy (or other) No Decompression Tables, is no guarantee of avoiding decompression sickness, i.e. "the bends."** Every diver's physiology is different, and can even vary from day to day. No machine can predict how your body will react to a particular dive profile.

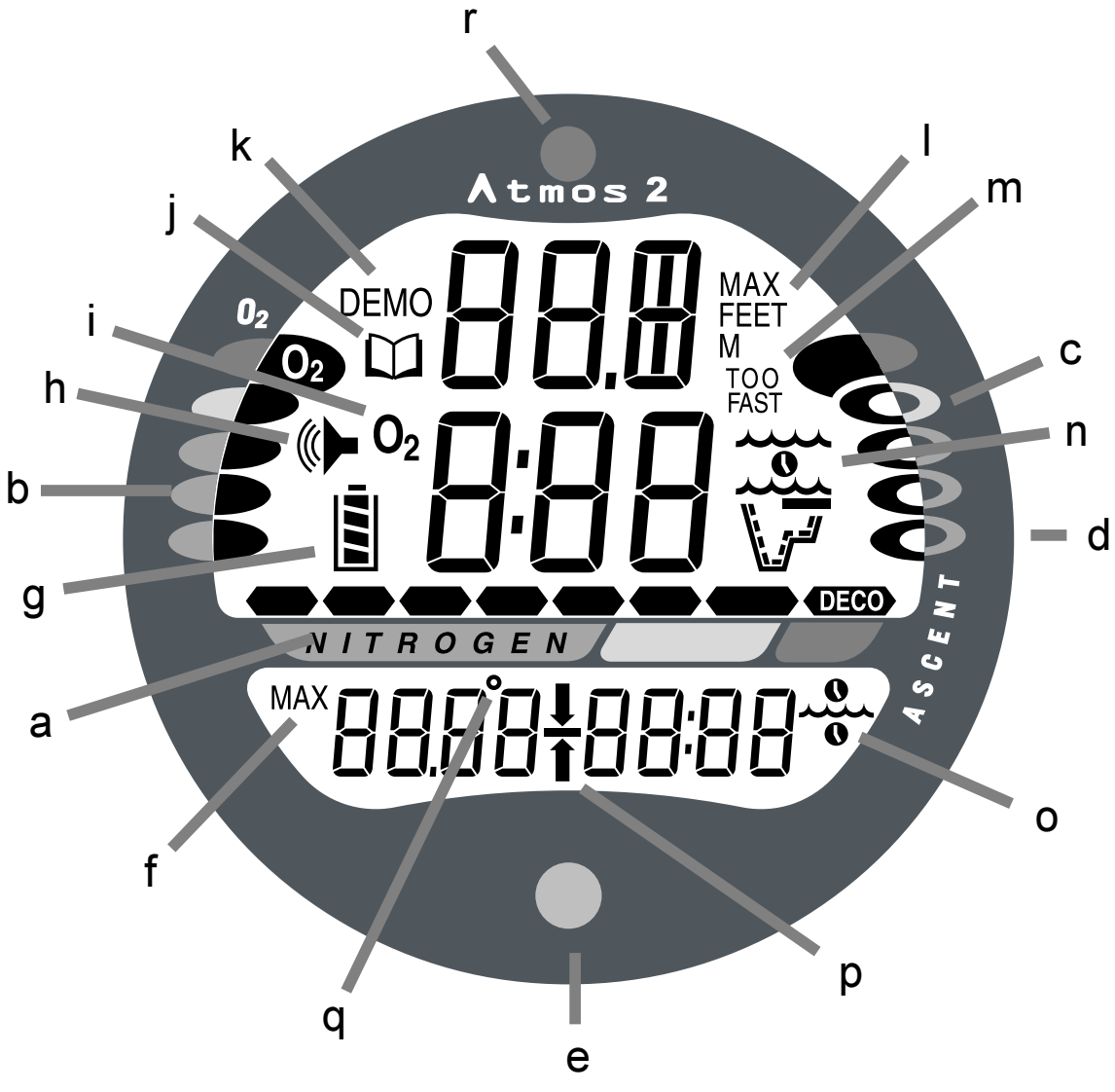
CONTENTS

CONTENTS (continued)

CONTENTS (continued)

Pay special attention to items marked with this Warning symbol.

LCD LAYOUT



Components:

a. Nitrogen Loading Bar Graph
b. Oxygen Accumulation Bar Graph
c. Variable Ascent Rate Indicator
d. Select (Side) Button
e. Advance (Front) Button
f. Graphic - Maximum Depth
g. Battery Consumption Indicator
h. Icon - Alarm
i. Icon - O2 (oxygen)
j. Icon - Log Mode
k. Graphic - Demo Mode
l. Graphic - Depth
m. Graphic - Ascent Too Fast
n. Icon - Operating Mode
o. Icon - Time
p. Icon - Ascend Arrow
   Icon - Decompression Ceiling Bar
   Icon - Descend Arrow
q. Icon - Temperature
r. Alarm Warning Light

WARNING: Prior to diving with the Atmos 2, you must also read and understand the AERIS Dive Computer Safety & Reference Manual, Doc. No. 12-7203, which provides Important Warnings and Safety Recommendations as well as general product information.

FEATURES and DISPLAYS

WELCOME TO AERIS !
AND
THANK YOU FOR CHOOSING THE ATMOS 2 !

Your ATMOS 2 presents the information that you need before, during, and after your air (or nitrox) dives using a combination of easy to read displays and identification icons. It can also be set to operate simply as a digital depth gauge/timer. This instructional guide is intended to help you become familiar with the functions and features available and show you examples of displays that you could expect to see in the various operational modes. Relax and read through the complete operating manual.

Remember that the rules you learned in your basic scuba certification course(s) still apply to the diving you will do while using a dive computer - some will become even more important. Technology is no substitute for common sense, and a dive computer only provides the person using it with data, not the knowledge to use it.

Since the ATMOS 2 can be used when diving with either Air or Nitrox, the term Breathing Gas is used in this manual.

- Breathing Gas is the gaseous mixture breathed during a dive.
- Air is a breathing gas that contains approximately 21% oxygen and 79% nitrogen (nature's common nitrogen-oxygen mixture).
- Nitrox is a nitrogen-oxygen breathing gas that contains a higher fraction of oxygen (22 to 50%) than air.

CONTROL BUTTONS

The two Control Buttons allow you to select display options, access specific information when you want to see it, and activate the Backlight.

The Front button is named **Advance** (Fig. 1a) and the Side button **Select** (Fig. 1b).

BAR GRAPHS

Nitrogen Bar Graph

The Nitrogen Bar Graph (Fig. 1c) represents tissue loading of nitrogen, showing your relative No Decompression or Decompression status. As your Depth and Elapsed Dive Time increase, segments will add to the Graph, and as you Ascend to shallower depths, the Bar Graph will begin to recede, indicating that additional No Decompression Time is allowed for multilevel diving.

The Nitrogen Bar Graph monitors 12 different nitrogen compartments simultaneously and displays the one that is in control of your dive. It is divided into a green No Decompression (normal) zone, a yellow Caution zone (also No Decompression), and a red Decompression (danger) zone.

While you cannot provide a guarantee against the occurrence of decompression sickness, you may choose your own personal zone of caution based upon age, physique, excessive weight, etc., to reduce the statistical risk.

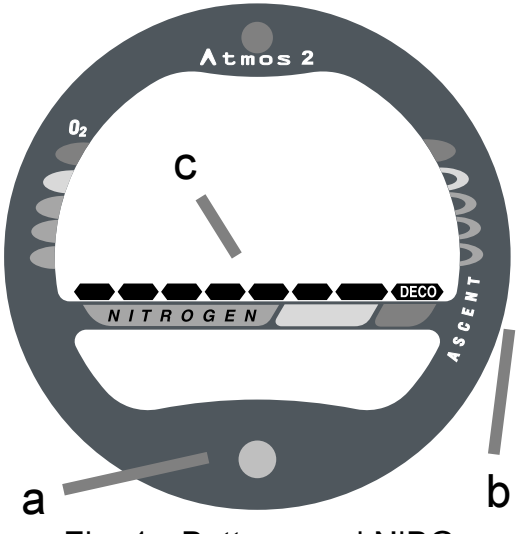


Fig. 1 - Buttons and NiBG

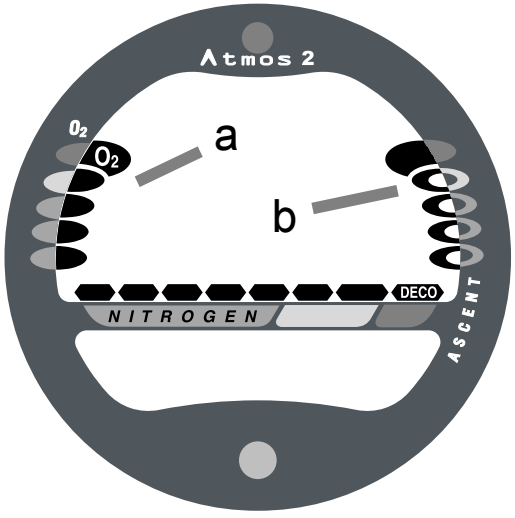


Fig. 2 - O2BG & VARI

Oxygen (O2) Accumulation Bar Graph

The O2 Bar Graph (Fig. 2a) represents Oxygen Loading, your relative oxygen tolerance dosage (OTU), showing the maximum of either per dive accumulated Oxygen, or 24 hour period accumulated Oxygen. As your accumulation increases during the dive, segments will add to the Bar Graph, and as loading decreases, it will begin to recede, indicating that additional exposure is allowed.

NOTE: Displays associated with Oxygen and the O2 Bar Graph will only appear if FO2 has been set at a value other than 'Air' (e.g., a numerical value).

Deeper than 60 feet (18 m)

Segments Displayed	Ascent Rate = FPM	MPM
0	0-20	0 - 6
1	21-30	6.5-9
2	31-40	9.5-12
3	41-50	12.5-15
4	51-60	15.5-18
5	>60	>18

60 feet (18 m) & Shallower

Segments Displayed	Ascent Rate = FPM	MPM
0	0-10	0 - 3
1	11-15	3.5-4.5
2	16-20	5-6
3	21-25	6.5-7.5
4	26-30	8-9
5	>30	>9

Variable Ascent Rate Indicator

Variable Ascent Rate Indicator

The Variable Ascent Rate Indicator (Fig. 2b) provides a visual representation of Ascent Speed (i.e., an ascent speedometer). Green is a 'normal' rate, yellow a 'caution' rate, and red is 'Too Fast'. The segments of the Variable Ascent Rate Indicator represent 2 sets of speeds which change at a reference depth of 60 feet (18 meters). Refer to the chart for segment values.

WARNING: At depths greater than 60 feet (18 meters), Ascent Rates should not exceed 60 feet per minute (18 mpm). At depths of 60 feet (18 meters) and shallower, Ascent Rates should not exceed 30 feet per minute (9 meters per minute).

INFORMATIONAL DISPLAYS

Each numeric and graphic display represents a unique piece of information. It is imperative that you understand the formats, ranges, and values of the information represented to avoid any possible misunderstanding that could result in error.

Depth Displays

During a dive, the **Current Depth** display (Fig. 3a), indicates depths from 0 to 330 feet (99.9 meters) in 1 foot (.1 meter) increments. The **Maximum Depth** reached during that dive will be displayed in the lower window of the display (Fig. 3b).

- When the unit is set to operate as a digital depth gauge/timer (referred to as User Set Gauge Mode), the Depth Display range is 'extended' to 399 feet (120 meters). At depths greater than 99.9 meters, it will indicate metric values in increments of 1 meter.

During a Decompression Dive, the required **Ceiling Stop Depth** is displayed in the lower window. Maximum Depth can then be viewed by pressing the Advance (Front) button.

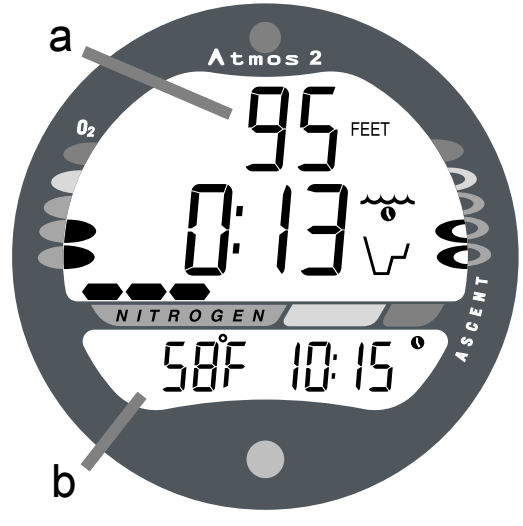


Fig. 3 - Depth Displays

Time and Date Displays

Time displays are shown in hour:minute format (i.e., 1:22 represents 1 hour and 22 minutes, not 122 minutes!). The colon that separates hours and minutes blinks once per second when the display is indicating real time (e.g., Elapsed Dive Time), and is solid (non-blinking) when times are calculated projections (e.g., Time to Fly).

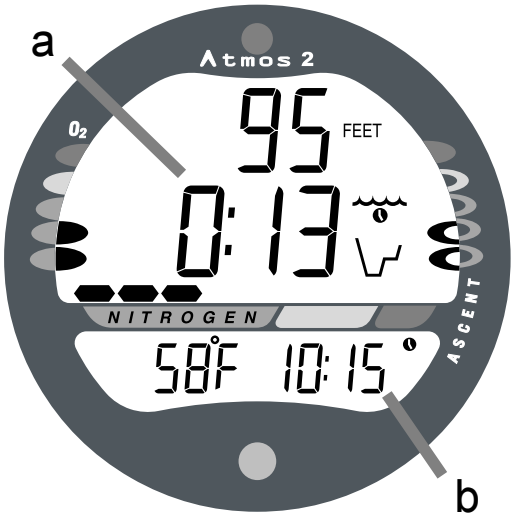


Fig. 4 - Time Displays

Due to the importance of the information it presents, the **Main Time** display (Fig. 4a) is configured with the largest segments of the LCD. A **second time display** (Fig. 4b) is located in the lower window. Both displays are identified by a clock icon.

- Time of Day can be set for 12 hour format (Am/Pm) or 24 hour format.

Date is displayed in the lower screen only to identify dive data while it is viewed in the Log Mode.

- When Units of Measure are set for 'Imperial', the Month appears to the left of Day. When set for Metric, the Month appears to the right of Day.

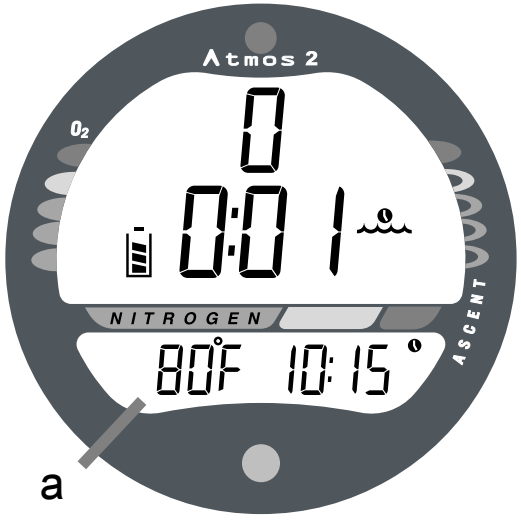


Fig. 5 - Temperature

Temperature Display

Ambient Temperature is displayed in the lower window (Fig. 5a) while in the Surface Mode and can be viewed as part of an Alternate Display when the Advance (Front) button is pressed while in a dive mode. If the Temperature exceeds a value of '99', 2 dashes (- -) will be displayed on the screen until the unit's temperature decreases to '99'.

△ **NOTE: The Informational Displays are described in detail as the various operating modes they appear in are presented throughout this manual.**

AUDIBLE ALARM

When warning situations activate the Alarm, the unit will emit a continuous tone for 30 seconds, or until the situation is corrected, or it is acknowledged by pressing the Advance (Front) button for 2 seconds. If acknowledged by the user and the situation corrected, the Alarm will sound again upon reentry into the warning situation, or entry into another type of warning situation.

Warning situations that will sound the Alarm, if it is turned ON (a user setting), include -

- Entry into Decompression Mode
- PO2 => than the Max PO2 Alarm (a user setting), or => 1.60 ATA.
- Descent deeper than the Max Depth Alarm (a user setting).
- Nitrogen Bar Graph Alarm (a user setting).
- Dive Time Remaining Alarm (a user setting).
- Elapsed Dive Time Alarm (a user setting).
- O2 Accumulation => allowable per dive limit, or limit for a 24 hour period.
- Ascending above a required Decompression stop depth for < 5 min. (Conditional Violation).
- Ascent rate exceeds 60 fpm (18 mpm) if > 60 ft (18 m), or 30 fpm (9 mpm) if <= 60 ft (18 m).

During the following situations, the 30 second continuous tone will be followed by a 5 second steady beep that will not turn off when acknowledged, even if it was user Set OFF -

- Ascending above a required Decompression stop depth for more > 5 min. (Delayed Violation).
- Decompression requires a ceiling stop depth => 70 FT (18 M).
- Being on the surface for 5 minutes after a Conditional Violation (Permanent Violation).

A single short beep (which cannot be disabled) is emitted - after the Diagnostic check, upon automatic return to Surface Mode from Simulator Mode, upon completion of a fast battery change with calculations/settings saved, and upon change from Delayed to Full Violation after that dive.

LED WARNING INDICATOR

The red LED Warning Light located on the upper portion of the module (Fig. 6) is synchronized with the Audible Alarm and will indicate an Alarm when the unit emits a tone.

The LED will be OFF when the Alarm is acknowledged, or Set OFF (a user setting).

BACKLIGHT

To activate the Backlight while in the Surface Mode or during a dive-

- press the Select (Side) button. The screens will be illuminated for button depression time plus 0, 3, or 7 seconds (a user setting). Press the button again to activate as desired.
- The Backlight illuminates both the upper and lower screens.
- The Backlight does not operate during a Low Battery condition.

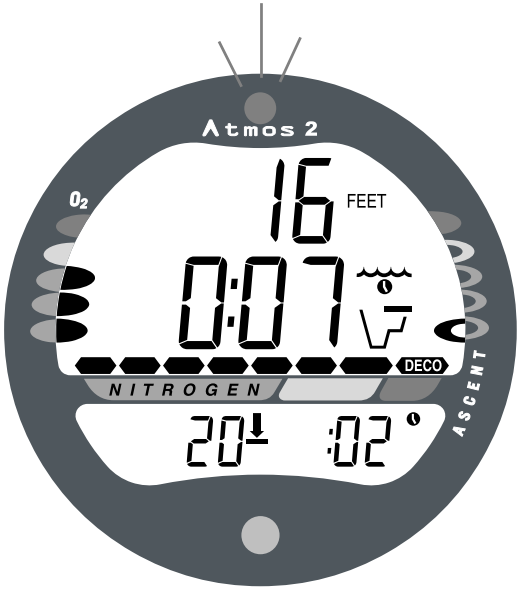


Fig. 6 - LED Warning

NOTE: AERIS recommends that you always carry primary and backup dive lights when conducting dives that could include low light situations.

POWER SUPPLY

The ATMOS 2 utilizes one (1) type CR 2450 Lithium 3 volt cell that should provide approximately 300 hours of continuous, or 50 activation periods, of operation.

- If you conduct 1 dive each time the unit is activated, you should obtain approximately 50 dives.

- If you conduct 3 dives each time the unit is activated, you should obtain approximately 150 dives.

Battery Indicator

A Battery Indicator provides an indication of battery condition. When power is sufficient for normal unit operation, the Indicator (icon) will be displayed during Surface Mode (Fig. 7a).

The Indicator will not be displayed during dive modes.

When a Low Battery Condition is sensed, the Indicator will flash.

(continued on page 16)

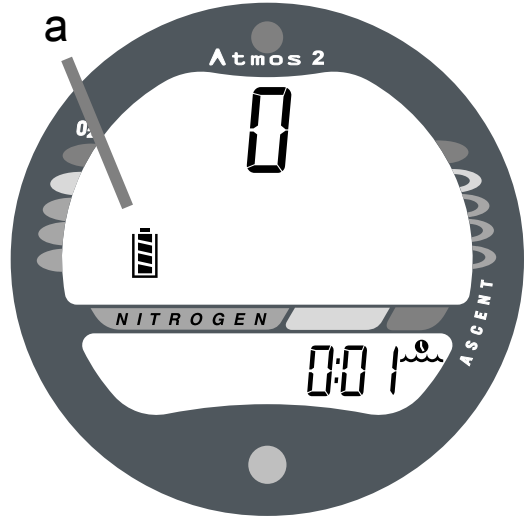


Fig. 7 - Battery Indicator

Low Battery Condition

Voltage level is checked upon activation and every 10 minutes during operation.

- If a Low Battery Condition exists when the unit is activated (by pressing the button), the Battery icon will appear flashing once per second for 5 seconds (Fig. 8) followed by shutdown of the unit.
- If the button is not pressed to activate the unit prior to a dive, and a Low Battery Condition exists, the Low Battery icon will appear flashing as a warning upon descent past 4 feet (1.2 meters). No other information will be displayed.
- If the unit did not display the Low Battery icon 'prior to' entering the Dive Mode, and a Low Battery Condition occurs during the dive, there will be sufficient battery power to maintain unit operation for the remainder of 'that dive'. The Low Battery icon will appear upon surfacing when Surface Mode is displayed.

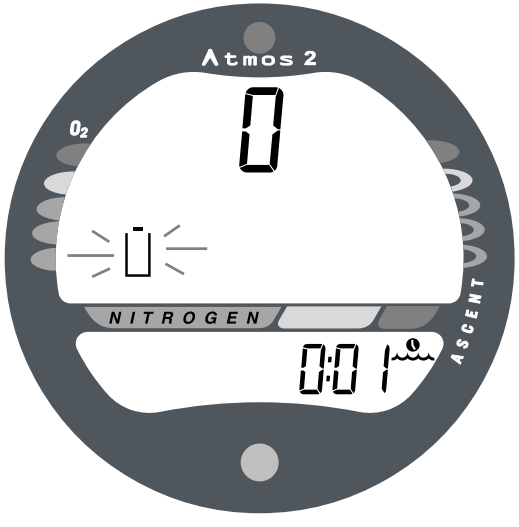


Fig. 8 - Low Battery

When the Battery is removed, nitrogen and oxygen calculations for repetitive dives are reset to zero after 8 seconds. Also, settings such as Time, Date, and FO2 must be reset. If a new battery can be inserted within 8 seconds, the calculations and settings will be retained.

NOTE: Battery change procedures are described on page 84 of this manual.

FO2 MODE

After Activation, the ATMOS 2 will operate as an Air computer without displaying information associated with oxygen calculations, unless it is set for a percentage of oxygen (FO2) other than Air (numerical value between 21 and 50 %).

Fig. 9 - FO2 Air

NOTE: Setting FO2 is described on Page 25.

When set with an **FO2 value of 'Air'** (Fig. 9), the ATMOS 2 will perform calculations the same as if FO2 were set for 21% oxygen, internally accounting for oxygen loading for any subsequent Nitrox dives. However, oxygen related displays, warnings, and the O2 bar graph will not appear on the display for that dive, or subsequent dives, unless FO2 is set for a numerical value (21 - 50).

Once a dive is made with the unit set as a nitrox computer (FO2 set for a numerical value), the unit cannot be programmed to operate as an 'Air' computer until 24 hours after the last dive. 'Air' will not be displayed as an option in the FO2 Mode. However, you can set FO2 for 21% for use with Air.

When FO2 is set at a **value of 21%** (Fig. 10), the unit will remain set at 21% for subsequent nitrox dives until FO2 is set to a higher value, or until it automatically turns off and is reactivated.

Fig. 10 - FO2 of 21%

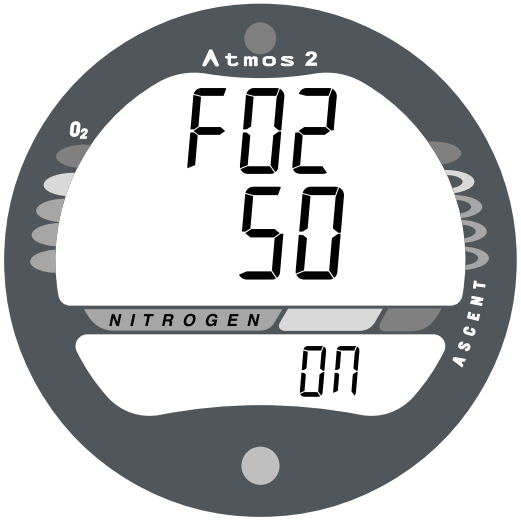


Fig. 11 - FO2 Default ON

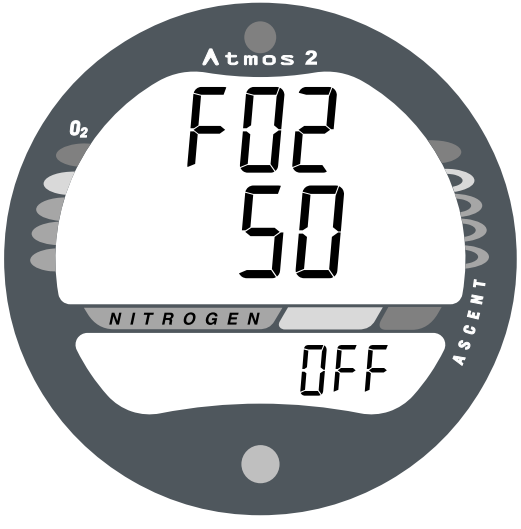


Fig. 12 - FO2 Default OFF

⚠ WARNING: The percentage of oxygen (FO2) in the nitrox mix being used must be set 'before each' nitrox dive, unless the FO2 50% Default feature has been turned OFF.

FO2 50% Default

If the Default is set to ON and FO2 is set to a value 'greater than 21%', the FO2 set point value will automatically revert to 50% 10 minutes after that dive (Fig. 11). The Maximum Depth that can be achieved with a PO2 of 1.60 ATA will also be displayed.

- FO2 must therefore be reset for each repetitive nitrox dive, or the value will automatically 'default' to 50(%) and the dives will be calculated based on 50% O2 (50% nitrogen) for oxygen calculations and 21% O2 (79% nitrogen) for nitrogen calculations.

⚠ WARNING: If you surface for greater than 10 minutes during a dive, a subsequent descent will be considered a new dive and FO2 must be reset.

If the Default is set to OFF, the FO2 value for repetitive dives remains the same (Fig. 12) until the set point is manually changed.

⚠ WARNING: Even if the Default is set OFF, the FO2 set point should be 'verified' to match the FO2 in the nitrox mix being used before each nitrox dive.

DIVE TIME REMAINING

One of the most important pieces of information on Aeris dive computers is the 'Dive Time Remaining numeric display'. The dive computer constantly monitors no decompression status and oxygen exposure.

The Dive Time Remaining* display will indicate <u>the time that is more critical for you</u> at that particular moment (i.e.; whichever time is the least amount available). The specific time being displayed is identified by the No Decompression Dive Time icon, or the O2 Time icon.

(* This unique feature has been granted U.S. Patent No. 4,586,136.)

No Decompression Dive Time Remaining

No Decompression Dive Time Remaining is the maximum amount of time that you can stay at your present depth before entering a decompression situation. It is calculated based on the amount of nitrogen absorbed by hypothetical tissue compartments. The rates each of these compartments absorb and release nitrogen is mathematically modeled and compared against a maximum allowable nitrogen level. Whichever one is closest to this maximum level is the controlling compartment for that depth. Its resulting value will be displayed numerically (Fig. 13a) along with the No Decompression Dive icon and graphically as the Nitrogen Bar Graph (Fig. 13b).

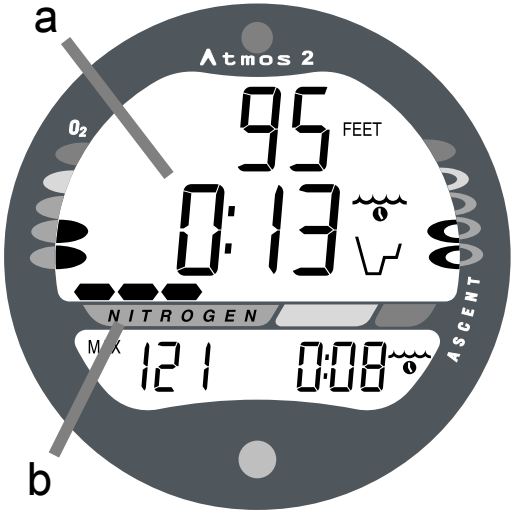


Fig. 13 - No Decompression Dive Time Remaining

As you ascend from depth following a dive that has approached the no decompression limit, the Nitrogen Bar Graph will recede as control shifts to slower compartments. This is a feature of the decompression model that is the basis for multilevel diving, one of the most important advantages that Aeris dive computers offer.

The no decompression algorithm is based upon Haldane's theory using maximum allowable nitrogen levels developed by Merrill Spencer. Repetitive diving control is based upon experiments designed and conducted by Dr. Ray Rogers and Dr. Michael Powell in 1987. Diving Science and Technology® (DSAT), a corporate affiliate of PADI®, commissioned these experiments.

Oxygen Accumulation Time Remaining

Oxygen accumulation (exposure) during a dive, or 24 hour period, appears graphically as the Oxygen Accumulation (O2) Bar Graph (Fig. 14a). As time remaining before reaching the oxygen exposure limit decreases, segments are added to the O2 Bar Graph.

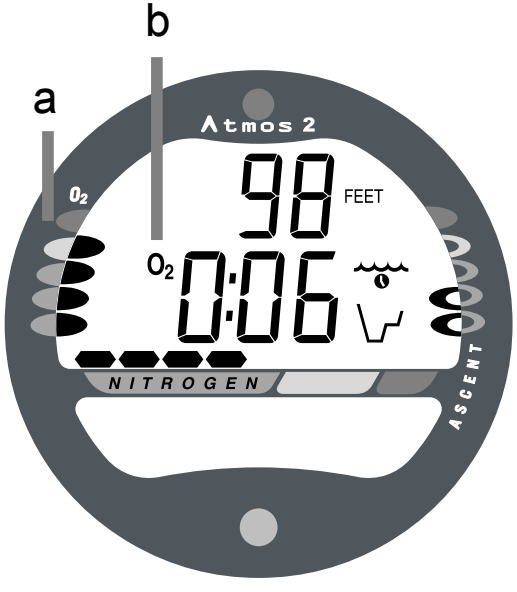


Fig. 14 - O2 Accumulation Dive Time Remaining

When the amount of time remaining before reaching the oxygen limit becomes less than the No Decompression Dive Time Remaining, calculations for that depth will be controlled by oxygen. Oxygen Time Remaining will then appear as the main numeric time display (Fig. 14b) as signified by the O2 Time icon appearing on the display. As oxygen accumulation continues to increase, the O2 Bar Graph will enter the yellow Caution Zone.

WARNING: Prior to diving with the Atmos 2, you must also read and understand the AERIS Dive Computer Safety & Reference Manual, Doc. No. 12-7203, which provides Important Warnings and Safety Recommendations as well as general product information.

ACTIVATION and SETUP

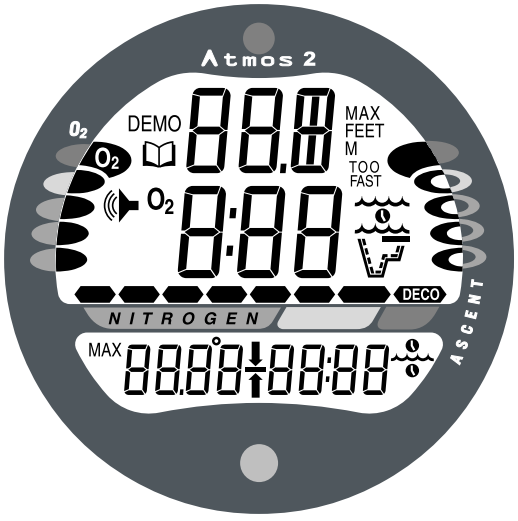


Fig. 15 - Diagnostic Mode

Fig. 16 - Serial Number

ACTIVATION

To Activate the ATMOS 2, press and release the Advance (Front) button.

Wet Activation (only functional if the feature is set ON)

As a backup, the ATMOS 2 will also automatically activate by water contact. This is accomplished by bridging the gap between contacts located on the stems of the control buttons and back of the module. The H2O graphic that will be displayed as an indication is described later. If the Water Activation feature (a user setting) is set OFF, the ATMOS 2 will only activate by push button and only if shallower than 4 feet (1.2 meters) depth.

- Upon manual activation, the unit will enter Diagnostic Mode (Fig. 15), displaying all segments of the LCD (as 8's), followed by dashes, then a countdown from 9 to 0. The Backlight will be on.
- Diagnostic Mode checks the display and battery voltage to ensure that everything is within tolerance and functioning properly. The Battery icon will not be displayed during Diagnostic Mode.
- When the Advance (Front) button is held depressed when the Diagnostic countdown reaches 00, an External Access request is initiated. A Serial Number screen appears displaying the unit's Serial Number and firmware code Revision Number as long as the button is held depressed (Fig. 16). Upon releasing the button, the unit shuts Off.

- After manual activation, it will also check the ambient barometric pressure, and calibrate its present depth as zero. At elevations of 2,000 feet (610 meters) or higher, it will recalibrate itself to measure depth in feet of fresh water instead of feet of sea water.
- If values are acceptable, the unit will enter Surface Mode. If any value is not acceptable, the unit will shut down in 5 seconds.
- If no dive is made within 2 hours after initial activation, the unit will automatically deactivate. If the wet contacts are still bridged, the unit will then reactivate and display the H2O graphic.

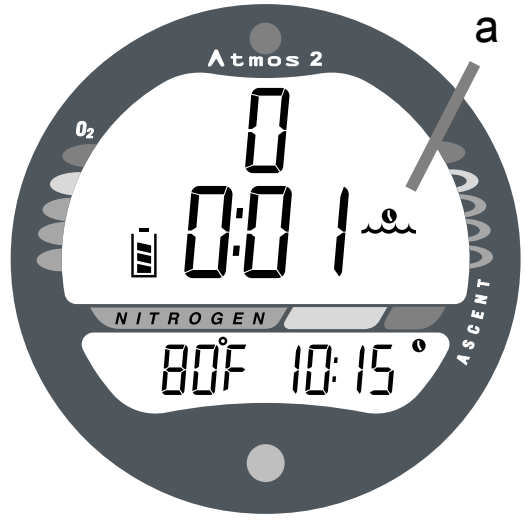


Fig. 17A - Surface Mode

SURFACE MODE

Surface Mode, identified by the Surface Time icon (Fig. 17Aa), follows Diagnostic Mode after Activation. Information includes Dive Number '0' (no dive made yet), the Battery Consumption Indicator, Surface Time (with flashing colon), Temperature (and icon), and Time of Day (with icon).

NOTE: If the wet contacts are bridged, the graphic 'H2O' will appear in place of the dive number '0' (Fig. 17B). After the unit is rinsed and dried, 'O' will replace 'H2O'.

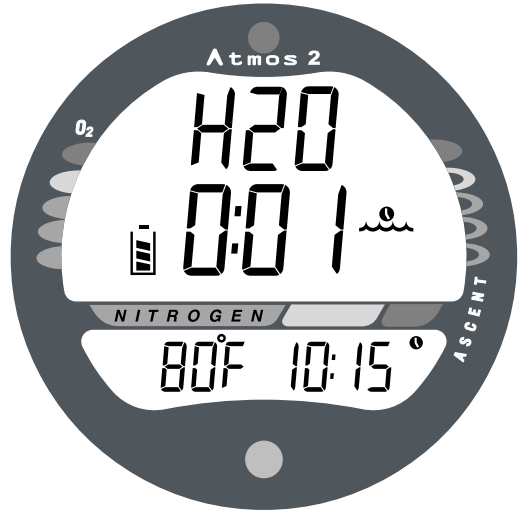


Fig. 17B - Surface Mode
(rinse and dry the unit)

Fig. 18 - Set Mode 1

Fig. 19 - Set Mode 2

⚠ WARNING: If a Low Battery condition is displayed after diagnostics, DO NOT dive with the ATMOS 2 until the battery is changed.

SET MODES

To help simplify the operations you might perform at the dive site, settings are divided into 2 categories. Set Mode #1 includes several settings that you would change more often and Set Mode #2 includes those items not likely to change once you set them. Set Mode 2 can be accessed by first entering settings in Set Mode 1, or by bypassing Set Mode 1.

After gaining access to Set Mode 1 or Set Mode 2, settings can be made in sequence one after the other, or you can access a specific item that you want to set bypassing others. The descriptions that follow describe access to each setting from Surface Mode.

Set Mode Access Timing

While in Surface Mode, press Both buttons simultaneously and hold -

- after 2 seconds, SET: 1 appears (Fig. 18)
- after 4 seconds, SET: 2 appears (Fig. 19)
- Access is gained to Set Modes by releasing the buttons during the 2 second window in which SET: 1 or SET: 2 appears, then pressing the Advance (Front) button.

- If the buttons are held longer and SET 1 and 2 are both by-passed, the unit will go to Simulator Mode which is described on page 75.
- While in the Set Mode, if neither button is pressed during a period of 2 minutes, the unit will revert to Surface Mode.

ENTERING SETTINGS - SET MODE #1

TO SET - FO2 (while in the Surface Mode)
Factory set for Air, FO2 can also be set to values between 21 and 50% in increments of 1%. FO2 defaults to the Air setting whenever the ATMOS 2 shuts off.

- Press Both buttons simultaneously, release when **SET: 1** appears.
- Press and release the Advance (Front) button, **FO2** appears with the value flashing (Fig. 20).
- Press and release the Select (Side) button to increase the FO2 value 1% per second from 21 to 50%, then display 'Air' again; or Press and hold the Select (Side) button to scroll from Air to 32%, then press and hold again to scroll from 32 to 50%, then Air .
- For each FO2 value that appears, the lower display indicates the Maximum Depth that can be achieved for a PO2 of 1.60 ATA (Fig. 21). If FO2 is set for Air, the lower display is blank.

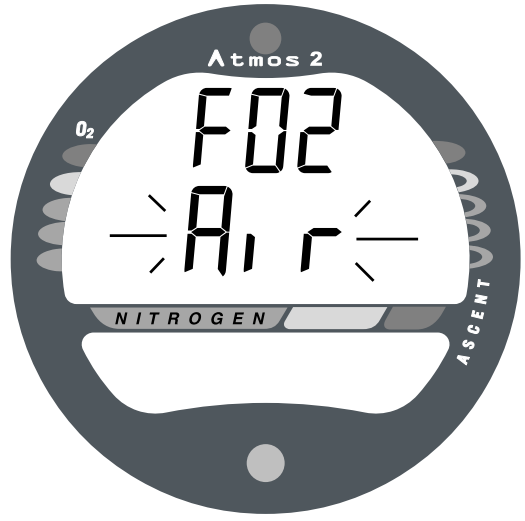


Fig. 20 - Set FO2

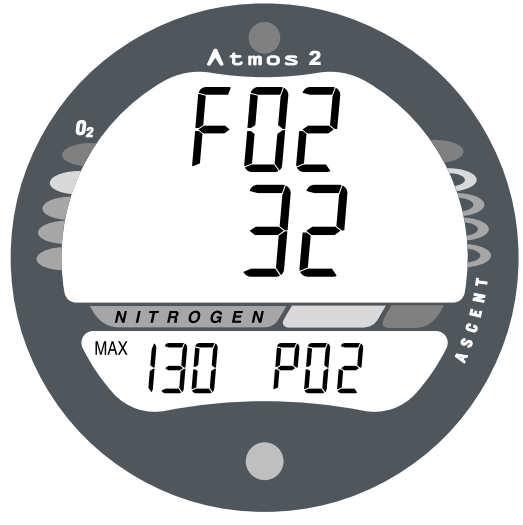


Fig. 21 - FO2 = 32%

- Press the Advance (Front) button to accept the setting and advance to Set Depth Alarm, or press and hold Both buttons for 2 seconds to revert to Surface Mode.
- Unit reverts to Surface Mode in 2 minutes if no button is pressed.

TO SET - MAX DEPTH ALARM (while in the Surface Mode) Factory set for 330 feet, the Maximum Depth Alarm can be set to values between 30 feet (3 meters) and 330 feet (99 meters) in increments of 10 foot (3 meters).

- Press Both buttons simultaneously, release when **SET: 1** appears.
- Press and release the Advance (Front) button, **FO2** appears with the value flashing.
- Press the Advance (Front) button **1 more time.**
- The graphics **MAX FEET** and **dEEP,** and Alarm icon appear with the **Max Depth** value flashing (Fig. 22).
- Press and release the Select (Side) button until the desired Alarm value appears, or press and hold the button to scroll through the Set Points.
- Press the Advance (Front) button to accept the setting and advance to Elapsed Dive Time Alarm, or press and hold Both buttons for 2 seconds to revert to Surface Mode.
- Unit reverts to Surface Mode in 2 minutes if no button is pressed.

Fig. 22 - Set Depth Alarm

TO SET - ELAPSED DIVE TIME ALARM

(while in the Surface Mode)

Factory set for 0:00 hr:min, the Alarm can be set to values between 0:10 and 3:00 hr:min in increments of 0:05 hr:min.

- Press Both buttons simultaneously, release when **SET: 1** appears.
- Press and release the Advance (Front) button, **FO2** appears with the value flashing.
- Press the Advance (Front) button **2 more times.**
- The graphic **EdT**, and Alarm and Dive Time icons appear with the **Elapsed Dive Time** value flashing (Fig. 23).
- Press and release the Select (Side) button until the desired Alarm value appears, or press and hold the button to scroll through the Set Points.
- Press the Advance (Front) button to accept the setting and advance to PC Interface, or press and hold Both buttons for 2 seconds to revert to Surface Mode.
- Unit reverts to Surface Mode in 2 minutes if no button is pressed.

Fig. 23 - Set Elapsed Time Alarm

PC INTERFACE

NOTE: For more information regarding PC Interface, refer to page 72 of this manual and to documents provided with the download product.

PC Interface is not a setting, it is included in the Set 1 menu for easy access when data in the unit's memory is to be downloaded (copied) to the PC download software program for storage and viewing.

To download data (while in the Surface Mode) -

- Press Both buttons simultaneously, release when **SET: 1** appears.
- Press and release the Advance (Front) button, **FO2** appears with the value flashing.
- Press the Advance (Front) button **3 more times.**
- The graphic **PC** appears with a 120 second countdown (Fig. 24). Download must be initiated before the countdown reaches 00.
- Download is initiated by the external device requesting data transfer (i.e., the PC download program).
- Press the Advance (Front) button to revert to Surface Mode.
- The unit reverts to Surface Mode after completion of the Download operation, or after 2 minutes if neither button is pressed.

Fig. 24 - PC Interface

ENTERING SETTINGS -SET MODE #2

NOTE: To return to Surface Mode at any time while in Set Mode, press and hold Both buttons for 2 seconds. The unit will automatically revert to Surface Mode after 2 minutes if no button is pressed.

TO SET - UNITS OF MEASURE (while in the Surface Mode)

Factory set for Imperial, Units of Measure can also be set for Metric.

- Press Both buttons simultaneously, release when SET: 2 appears.
- Press and release the Advance (Front) button, the Units screen appears with the graphics **F** (or M), and the Temperature icon and letter F (or C) appear with flashing (Fig. 25).
- Press the Select (Side) button to toggle between Imperial (F) and Metric (M and C) units.
- Press the Advance (Front) button to accept the setting and advance to Set Hour Format, or press and hold Both buttons for 2 seconds to revert to Surface Mode.

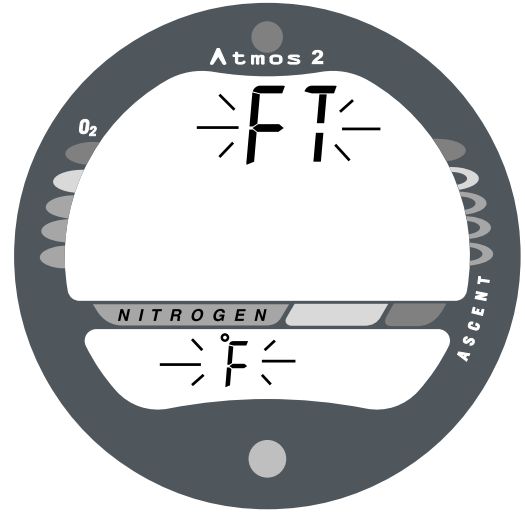


Fig. 25 - Set Units of Measure

TO SET - HOUR FORMAT (while in the Surface Mode)

Factory set for 12 Hr (12: Am to 11: Pm), the Format can also be set for 24 Hr (0: to 24: hours).

- Press Both buttons simultaneously, release when **SET: 2** appears.
- Press and release the Advance (Front) button, the Units screen appears with the set point flashing.
- Press the Advance (Front) button **1 more time.**
- The graphic **Hour** appears with **12** (or 24) flashing (Fig. 26).
- Press and release the Select (Side) button to toggle between 12 and 24
- Press the Advance (Front) button to accept the setting and advance to Set Time of Day, or press and hold Both buttons for 2 seconds to revert to Surface Mode.

Fig. 26 - Set Hour Format

TO SET - TIME OF DAY (while in the Surface Mode)
Factory set for factory local time, the Time can be set to values between 0:00 to 12:59 (Am/Pm) or 0:00 to 23:59 (24 Hr Format).

- Press Both buttons simultaneously, release when **SET: 2** appears.
- Press and release the Advance (Front) button, the Units screen appears with the set point flashing.
- Press the Advance (Front) button **2 more times.** The Time of Day appears with the **Hour** value flashing (Fig. 27).
- Press and release the Select (Side) button to advance the Hour value in increments of one hour, or press and hold the button to scroll through the Set Points.
- Press the Advance (Front) button to accept the setting. The **Minute** value flashes (Fig. 28),
- Press and release the Select (Side) button to advance the Minute value in increments of one minute, or press and hold the button to scroll through the Set Points.
- Press the Advance (Front) button to accept the setting and advance to Set Date, or press and hold Both buttons for 2 seconds to revert to Surface Mode.

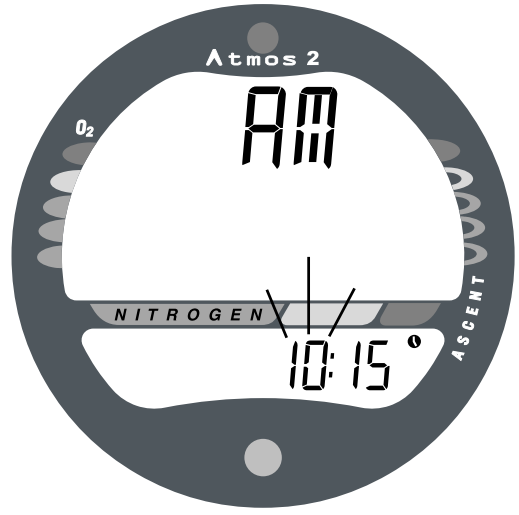


Fig. 27 - Set Hour

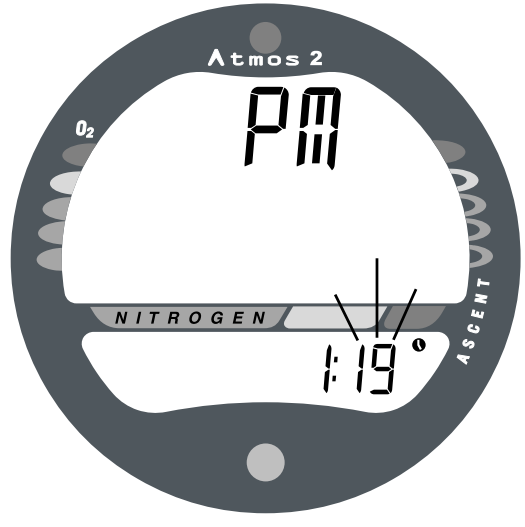


Fig. 28 - Set Minute

Fig. 29 - Set Year

Fig. 30 - Set Month

Fig. 31 - Set Day

TO SET - YEAR (while in the Surface Mode)
Factory set for the factory local Date, the Date can be set to values between 01/01/01 and 12/31/20.

- After having set and accepted the Time of Day, the Date appears with the graphic **dAY,** and **Year** value flashing (Fig. 29).
- Press and release the Select (Side) button to advance the Year value in increments of one year, or press and hold the button to scroll through the Set Points.
- Press the Advance (Front) button to accept the setting. The **Month** value flashes (Fig. 30).
- Press and release the Select (Side) button to advance the Month value in increments of one month, or press and hold the button to scroll through the Set Points.
- Press the Advance (Front) button to accept the setting. The **Day** value flashes (Fig. 31).
- Press and release the Select (Side) button to advance the Day value in increments of one day, or press and hold the button to scroll through the Set Points.
- Press the Advance (Front) button to accept the setting.

<u>TO SET - AUDIBLE ALARM</u> (while in the Surface Mode)
Factory set for ON, the Alarm can be also be set to OFF. This setting also applies to the LED Warning Indicator that is synchronized with the Audible.

When set OFF, the Alarm will not sound during the conditions described on page 13.

- Press <u>Both</u> buttons simultaneously, release when **SET: 2** appears.
- Press and release the <u>Advance (Front)</u> button, the Units screen appears with the set point flashing.
- Press the <u>Advance (Front)</u> button **<u>7 more times.</u>**
- The graphic **ALM** and Alarm (speaker) icon appear with **ON** (or OFF) flashing (Fig. 32).
- Press the <u>Select (Side)</u> button to toggle between ON and OFF.
- Press the <u>Advance (Front)</u> button to accept the setting and advance to Set Max Nitrogen Bar Graph Alarm, or press and hold Both buttons for 2 seconds to revert to Surface Mode.

Fig. 32- Set Audible Alarm

TO SET - MAX NITROGEN BAR GRAPH ALARM

(while in the Surface Mode)

Factory set for DECO (all 8 segments), the Maximum Nitrogen Bar Graph (NiBG) Alarm can be set to values between DECO (8 segments) and 1 segment.

- Press Both buttons simultaneously, release when **SET: 2** appears.
- Press and release the Advance (Front) button, the Units screen appears with the set point flashing.
- Press the Advance (Front) button **8 more times.**
- The graphic **ndc** and Alarm icon appear with the full **Nitrogen Bar Graph** flashing (Fig. 33).
- Press and release the Select (Side) button to decrease the number of segments one at a time, or press and hold the button to scroll through the Set Points.
- Press the Advance (Front) button to accept the setting and advance to Set Dive Time Remaining Alarm, or press and hold Both buttons for 2 seconds to revert to Surface Mode.

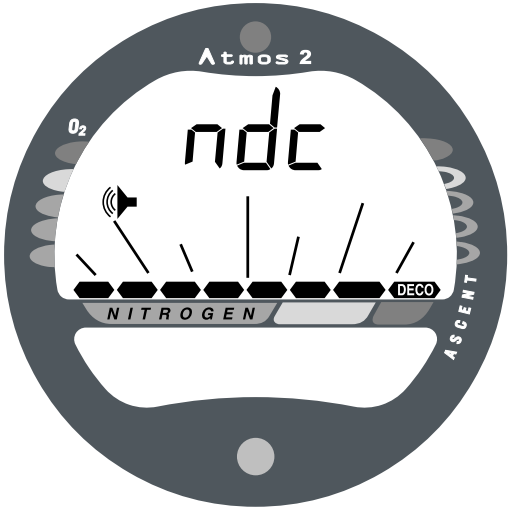


Fig. 33 - Set Max Nitrogen Bar Graph Alarm

TO SET - DIVE TIME REMAINING ALARM

(while in the Surface Mode)

Factory set for 0:00 (minutes), the Dive Time Remaining Alarm can be set to values between 0:00 and 0:20 (minutes) in increments of 1 minute.

- Press Both buttons simultaneously, release when **SET: 2** appears.
- Press and release the Advance (Front) button, the Units screen appears with the set point flashing.
- Press the Advance (Front) button **9 more times.**
- The graphic **dtr** and Alarm and Dive Mode icons appear with the **Dive Time Remaining** value flashing (Fig. 34).
- Press and release the Select (Side) button to advance the Alarm value in increments of one minute, or press and hold the button to scroll through the Set Points.
- Press the Advance (Front) button to accept the setting and advance to Set Max PO2 Alarm, or press and hold Both buttons for 2 seconds to revert to Surface Mode.

Fig. 34 - Set Dive Time Remaining Alarm

TO SET - MAX PO2 ALARM (while in the Surface Mode)

Factory set for 1.60 (ATA), the Maximum PO2 Alarm can be set to values between 1.20 and 1.60 (ATA) in increments of .10 (ATA).

- Press Both buttons simultaneously, release when **SET: 2** appears.
- Press and release the Advance (Front) button, the Units screen appears with the set point flashing.
- Press the Advance (Front) button **10 more times.**
- The graphics **PO2** and **MAX**, and Alarm icon appear with the **PO2 value** flashing (Fig. 35).
- Press and release the Select (Side) button to advance the Alarm value in increments of .10 (ATA), or press and hold the button to scroll through the Set Points.
- Press the Advance (Front) button to accept the setting and advance to Set FO2 50% Default, or press and hold Both buttons for 2 seconds to revert to Surface Mode.

Fig. 35 - Set Max PO2 Alarm

TO SET - FO2 50% DEFAULT (while in the Surface Mode)
Factory set ON, the FO2 50% Default feature can be set to OFF. The effects of this feature being ON or OFF are described on page 18.

- Press Both buttons simultaneously, release when **SET: 2** appears.
- Press and release the Advance (Front) button, the Units screen appears with the set point flashing.
- Press the Advance (Front) button **11 more times.**
- The graphics **FO2** and **50** appear with the **ON** (or OFF) flashing (Fig. 36).
- Press the Select (Side) button to toggle between ON and OFF.
- Press the Advance (Front) button to accept the setting and advance to Set Units of Measure, or press and hold Both buttons for 2 seconds to revert to Surface Mode.

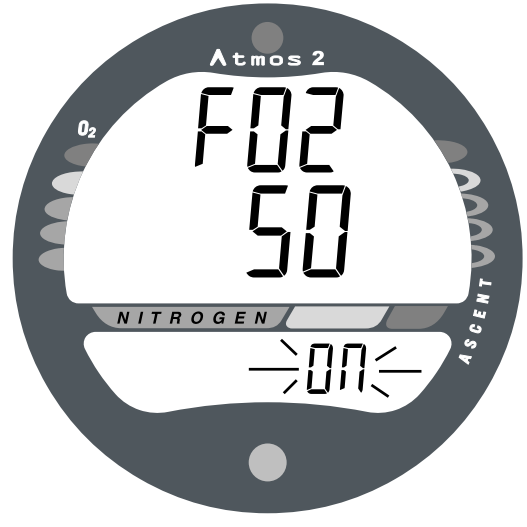


Fig. 36 - Set FO2 50% Default

TO SET - BACKLIGHT DURATION

(while in the Surface Mode)

Factory set for 7 (seconds), the Backlight Duration can be set to values of 0, 3, or 7 (seconds).

- Press Both buttons simultaneously, release when **SET: 2** appears.
- Press and release the Advance (Front) button, the Units screen appears with the set point flashing.
- Press the Advance (Front) button **12 more times.**
- The graphic **GLO** and Time icon appear with the Duration **value** flashing (Fig. 37).
- Press and release the Select (Side) button to advance the Duration from :00 to :03 to :07 (seconds)
- Press the Advance (Front) button to accept the setting and advance to Set Sampling Rate, or press and hold Both buttons for 2 seconds to revert to Surface Mode.

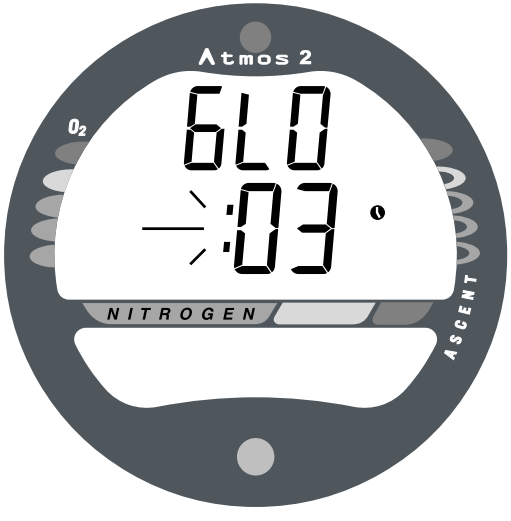


Fig. 37 - Set Backlight Duration

TO SET - SAMPLING RATE (while in the Surface Mode)
Factory set for 30 (seconds), the Sampling Rate can be set to values of 2, 15, 30, or 60 (seconds), or 2, 5, 10 feet (.5, 1.5, 3 meters).

Sampling Rate is the interval at which data samples are recorded during a dive for subsequent download to the PC program. This setting has no effect on displayed data or data in the unit's Log.

- Press Both buttons simultaneously, release when **SET: 2** appears.
- Press and release the Advance (Front) button, the Units screen appears with the set point flashing.
- Press the Advance (Front) button **13 more times.**
- The graphic SR and SECS (or FEET) appear with the Sampling Rate **value** flashing (Fig. 38).
- Press and release the Select (Side) button to advance the Rate one selection at a time, or press and hold the button to scroll through the Set Points.
- Press the Advance (Front) button to accept the setting and advance to Set Digital Gauge Mode, or press and hold Both buttons for 2 seconds to revert to Surface Mode.

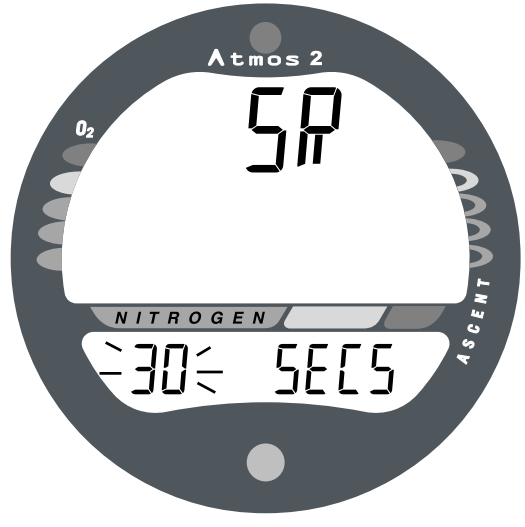


Fig. 38 - Set Sampling Rate

TO SET - USER SET DIGITAL GAUGE MODE

(while in the Surface Mode)

Factory set OFF, User Set Digital Gauge Mode can also be set ON. This feature is also described on page 66.

NOTE: Once a dive is made with this feature set ON, the setting will be locked ON for 24 hours after the dive. Set Digital Gauge Mode will not appear as a selection for 24 hours after the dive.

- Press Both buttons simultaneously, release when **SET: 2** appears.
- Press and release the Advance (Front) button, the Units screen appears with the set point flashing.
- Press the Advance (Front) button **14 more times.**
- The graphic **GAU** appears with **OFF** (or ON) flashing (Fig. 39).
- Press and release the Select (Side) button to toggle between ON and OFF.
- Press the Advance (Front) button to accept the setting and advance to Set Wet Activation, or press and hold Both buttons for 2 seconds to revert to Surface Mode.

Fig. 39 - User Set Gauge Mode

TO SET - WET ACTIVATION (while in the Surface Mode) Factory set ON, this feature can also be set OFF (disabled). When set ON, the ATMOS 2 will automatically Activate and enter Dive Mode upon immersion in water and descent to 5 feet (1.5 meters).

WARNING: If the Wet Activation feature is set OFF, the ATMOS 2 must be manually (push button) activated prior to commencing a dive.

- Press Both buttons simultaneously, release when **SET: 2** appears.
- Press and release the Advance (Front) button, the Units screen appears with the set point flashing.
- Press the Advance (Front) button **15 more times** (14 more times if a dive was made with Digital Gauge Mode set ON).
- The graphics **ACT** and **H2O** appear with **ON** (or OFF) flashing (Fig. 40).
- Press and release the Select (Side) button to toggle between ON and OFF.
- Press the Advance (Front) button to accept the setting and revert to Surface Mode.

Fig. 40 - Set Water Activation

(This page intentionally left blank)

WARNING: Prior to diving with the Atmos 2, you must also read and understand the AERIS Dive Computer Safety & Reference Manual, Doc. No. 12-7203, which provides Important Warnings and Safety Recommendations as well as general product information.

PRE DIVE MODES

DIVE PLANNER

WARNING: The available dive times provided by the Dive Planner are only predictions. Depending on cylinder size, breathing gas consumption, and oxygen accumulation you may have less time available than indicated because of breathing gas quantity or other limitations.

Depth feet (meters)	NDL hours:mins
30 (9)	4:20 (4:43)
40 (12)	2:17 (2:24)
50 (15)	1:21 (1:25)
60 (18)	:57 (:59)
70 (21)	:40 (:41)
80 (24)	:30 (:32)
90 (27)	:24 (:25)
100 (30)	:19 (:20)
110 (33)	:16 (:17)
120 (36)	:13 (:14)
130 (39)	:11 (:11)
140 (42)	:09 (:09)
150 (45)	:08 (:08)
160 (48)	:07 (:07)
170 (48)	:07 (:06)
180 (48)	:06 (:06)
190 (48)	:05 (:05)

No Decompression Limits
(no dive made yet)

The Dive Planner should be reviewed prior to every dive to help you plan your dive as required to avoid exceeding No Decompression or Oxygen Exposure Limits. For repetitive dives, the Planner indicates adjusted dive times that are available for the next dive, based on residual nitrogen or oxygen accumulation (whichever is in control) following the last dive and surface interval.

To access the Dive Planner (while in Surface Mode) -

- Press the Advance (Front) button **1 time**.
- Press and release the Select (Side) button to advance through the depths/times available one screen at a time.
- Press the Advance (Front) button to access Fly Mode.
- The unit will revert to Surface Mode after 2 minutes if no button is pressed.

The Dive Planner provides a sequence of theoretical dive times available for depths ranging from 30 feet (9 meters) to 190 feet (57 meters) in 10 foot (3 meter) increments.

No Decompression Times are only displayed for depths where there is at least 3 minutes of theoretical dive time available at the depth, taking into account a descent rate of 120 feet (36 meters) per minute. Depths greater than the Maximum Depth that can be achieved with a PO2 of 1.60 ATA will not be displayed.

With each Depth displayed by the Dive Planner, you will see either predicted No Decompression Limits (NDLs) based upon your previous dive profiles (if calculated to be nitrogen controlled), or predicted Oxygen Tolerance Limits (OTLs) based upon either a single dive exposure or your 24 hour accumulation of oxygen (if calculated to be oxygen controlled).

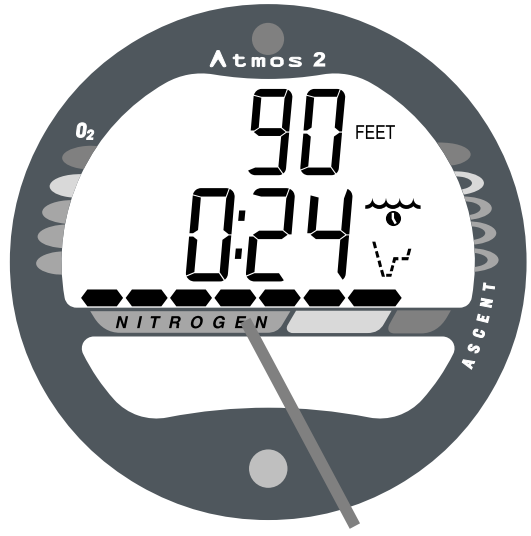


Fig. 41 - Nitrogen Control

If the Nitrogen Bar Graph is displayed (Fig. 41), that next dive is calculated to be controlled by Nitrogen loading. If the O2 Bar Graph and O2 symbol are displayed (Fig. 42), it is calculated to be controlled by Oxygen loading.

NOTE: The ATMOS 2 will store oxygen accumulation calculations for up to 10 dives conducted during a 24 hour period. If the maximum limit for oxygen loading has been exceeded for that day (24 hour period), all of the segments of the O2 bar graph will be displayed flashing . Depth/Time values will not appear until the O2 bar graph recedes into the green (normal) zone (i.e., your daily oxygen dosage decreases an amount equivalent to the amount accumulated during the latest dive completed).

Fig. 42 - Oxygen Control

⚠ WARNINGS

- **The percentage of oxygen (FO2) in the nitrox mix being used must be 'set before each nitrox dive', unless the FO2 50% Default feature is set OFF (a user setting).**
- **The Dive Planner provides predicted times for subsequent dives. Depending on cylinder size, breathing gas consumption, and oxygen accumulation, you may have less time available than indicated because of breathing gas quantity or other limitations.**
- **Until it has shut itself off, you must not use the ATMOS 2 at a different altitude than the altitude at which it was activated. Doing so will result in an error equal to the difference in barometric pressure, and possibly a false dive mode with erroneous data.**
- **To provide proper altitude compensation, the ATMOS 2 must manually activated at the new altitude. Dive computers, such as the ATMOS 2 cannot sense changes in barometric pressure if activated by immersion in water at higher altitudes.**
- **Use the Yellow Caution Zone of the Nitrogen Bar Graph as a visual reference to provide a greater margin of protection between you and the No Decompression Limits.**
- **Every effort should be made to keep each of the Bar Graphs in the green throughout your dives to reduce your risk of exposure to decompression sickness, oxygen toxicity, and the effects of excessive ascent rates.**

WARNING: Prior to diving with the Atmos 2, you must also read and understand the AERIS Dive Computer Safety & Reference Manual, Doc. No. 12-7203, which provides Important Warnings and Safety Recommendations as well as general product information.

DIVE MODES

DIVE MODE BAR GRAPHS

As your Depth and Elapsed Dive Time increase, the **Nitrogen Bar Graph** (Fig. 43a) will fill with segments (green toward red) to represent the absorption of Nitrogen.

While ascending to shallower depths, the segments that have filled the Nitrogen Bar Graph will begin to recede, offering a graphic representation of your multilevel diving capability.

If FO2 was set for a numerical value (nitrox), the **O2 Bar Graph** (Fig. 43b) will fill with segments (green toward red) to represent Oxygen Accumulation for that dive or 24 hour period, whichever amount is greater.

The **Variable Ascent Rate Indicator** (Fig. 43c) shows how fast you are Ascending. When you exceed the maximum recommended Ascent Rate for the depth you are at, it will enter the red (Too Fast) zone and you will be alerted by all segments of the bar graph flashing, and an Audible alarm (unless set OFF). The warnings will stop when your Ascent Rate is slowed.

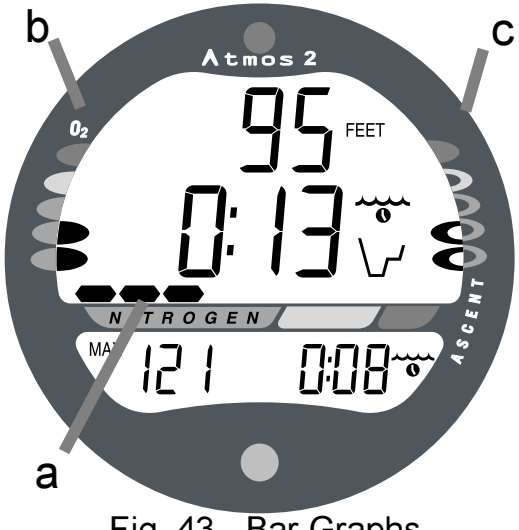


Fig. 43 - Bar Graphs

CONTROL OF DISPLAYS

During No Decompression conditions, various displays of information (up to 4) are available. Each provides Depth, Dive Time Remaining, and additional information. The intent of this feature is to provide the diver control of how much information is on the display at any given time during the dive. The diver can change from one display to another as often as desired by pressing the Advance (Front) button, otherwise it does not change.

During conditions in which cautionary type information is displayed (e.g., Decompression, High PO2, etc.), there is a Main Display of important information relevant to the specific condition. The diver can access another display, but it will automatically revert to the Main Display after 3 seconds.

To activate the Backlight, press the Select (Side) button.

- The displays will be illuminated as long as the button is depressed, plus it will remain illuminated for the Backlight Duration time that has been set (0, 3, or 7 seconds).
- The Backlight will not activate during a Low Battery condition.

NO DECOMPRESSION DIVE MODE

The ATMOS 2 will enter the No Decompression Dive Mode when you descend deeper than 4 feet (1.2 meters).

No Decompression Dive Mode - Display #1 (Fig. 44)

Information includes Current Depth, Dive Time Remaining (and Mode icon), Maximum Depth for that dive (and icon), Elapsed Dive Time (and icon), and the applicable bar graphs.

- press and release the Advance (Front) button to view Display #2.

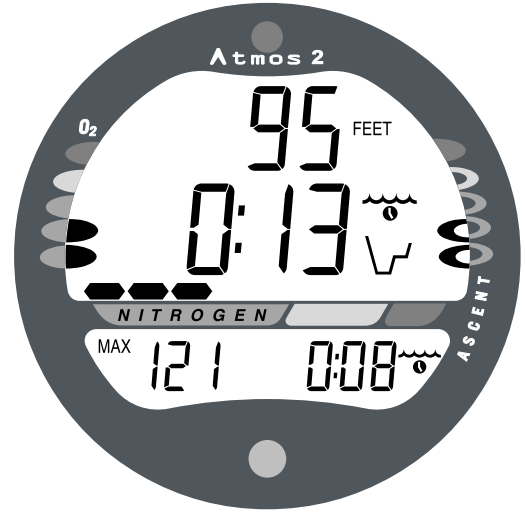


Fig. 44 - No Deco #1

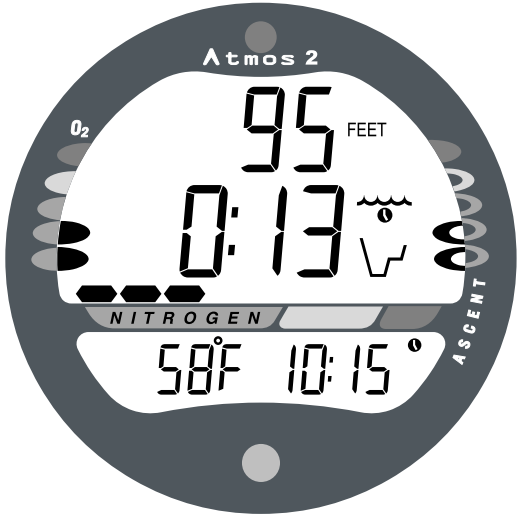


Fig. 45- No Deco #2

No Decompression Dive Mode - Display #2 (Fig. 45)

Information includes Current Depth, Dive Time Remaining (and Mode icon), Temperature, Time of Day, and the applicable bar graphs.

- press and release the Advance (Front) button to view Display #3 (only if FO2 is set for a numerical value - Nitrox), or Display #1 (if FO2 is set for Air).

No Decompression Dive Mode - Display #3 (Fig. 46)

Information includes - Current Depth, Dive Time Remaining (and Mode icon), current value of PO2 (if a nitrox dive), and applicable bar graphs.

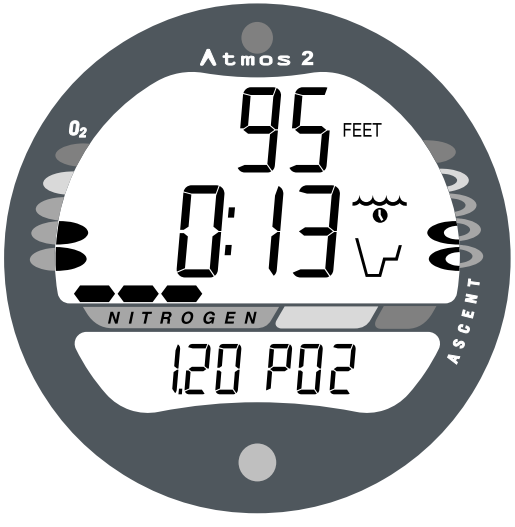


Fig. 46- No Deco #3

- press the Advance (Front) button to view Display #1.

No Decompression Dive Mode - SAFETY STOP

Upon ascending to 20 feet (6 meters) on any No Decompression dive in which Depth exceeded 30 feet (9 meters), a short beep will sound and a Safety Stop screen will appear displaying a Stop at 15 feet (4.5 meters) with a 3 minute countdown timer that counts down from 3:00 to :00 (min:sec).

The Safety Stop screen (Fig. 47) will be displayed until the countdown times out, or the a descent is made below 30 feet (10 meters), or the diver surfaces. There is no Penalty if the diver surfaces prior to completing the Safety Stop.

Information includes Current Depth, Stop Depth (15 feet or 4.5 meters), Stop Bar icon, Countdown Timer, Dive Time Remaining, and applicable bar graphs.

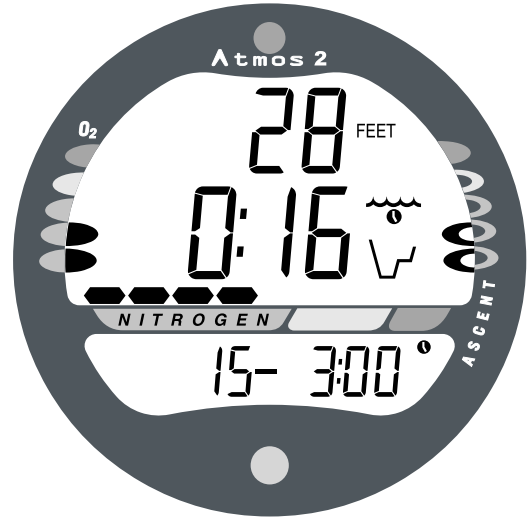


Fig. 47 - No Deco Safety Stop

DECOMPRESSION DIVE MODE

The ATMOS 2 is designed to help you by providing a representation of how close you are to entering Decompression. Decompression Dive Mode activates when theoretical No Decompression time/depth limits are exceeded.

Entry into Decompression Dive Mode (Fig. 48)

Upon entering Decompression Mode, the Audible Alarm will sound and the red LED Warning Indicator will flash for 30 seconds (unless set OFF), or until acknowledged.

At that time, you should begin a safe controlled ascent to a depth slightly deeper than, or equal to, the Required Ceiling Stop Depth indicated (Fig. 48a) and decompress for the Stop Time indicated (Fig. 48b). Total Ascent Time (Fig. 48c) appears below Depth (Fig. 48d).

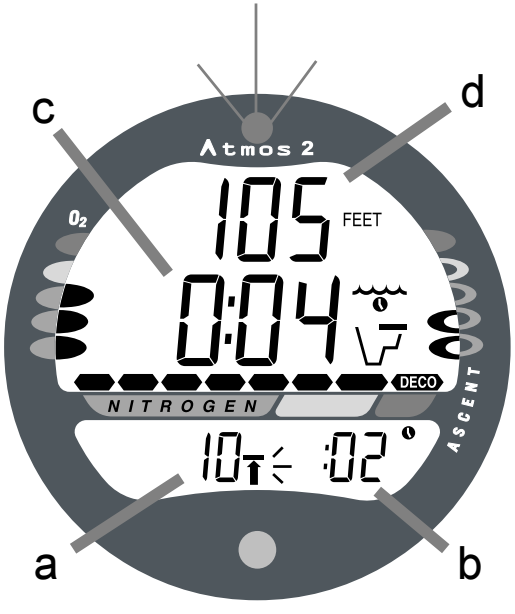


Fig. 48 -Entry into DECO

- The UP Arrow and Deco Bar will flash if you are greater than 10 feet (3 meters) deeper than the Required Ceiling Stop Depth.
- While within 10 feet (3 meters) of, and below, the Stop Depth, both Arrows and the Bar appear solid.

- Total Ascent Time includes Stop Times required at all ceilings and vertical Ascent Time calculated at 60 feet (18 meters) per minute for depths deeper than 60 feet (18 meters), and 30 feet (9 meters) per minute for depths of 60 feet (18 meters) and shallower.

Managing Decompression Stops

The amount of Decompression credit time that you receive is dependent on Depth, with slightly less credit given the deeper you are. You should stay slightly deeper (Fig. 49a) than the Required Stop Depth indicated (Fig. 49b) until the next shallower Stop Depth appears. Then, you can slowly Ascend to, but not shallower than that indicated ceiling Stop Depth.

Fig. 49 -Deco Main (Default))

Deco Dive Mode - Main (Default) Display (Fig. 49)

Information includes - Current Depth, required decompression Stop Depth and Time, Total Ascent Time (and Mode icon), both Arrows and the Deco Bar, and the applicable bar graphs.

- press and hold the Advance (Front) button for 2 seconds to acknowledge and silence the Audible Alarm (unless set OFF).
- press and release the Advance (Front) button to view Alt #1.

Deco Dive Mode - Alternate Display #1 (Fig. 50)

Information includes - Current Depth, Total Ascent Time, Maximum Depth for that dive (and icon), Elapsed Dive Time (and icon), and the applicable bar graphs.

Fig. 50 -Deco Alternate #1

- press and release the Advance (Front) button to view Alt #2.

Deco Dive Mode - Alternate Display #2 (Fig. 51)

This display is only available during nitrox dives.

Information includes - Current Depth, Total Ascent Time, the letters PO2 and current value of PO2, and applicable bar graphs.

- press the Advance (Front) button to view the Main Display.

△ **NOTE: While in Deco Dive Mode, the ATMOS 2 will automatically revert to the Main (Default) Display after 3 seconds unless the Advance (Front) button is pressed to view an Alternate Display of information.**

Fig. 51 -Deco Alternate #2

VIOLATION MODES

Violation Modes that the ATMOS 2 can enter are termed - Conditional, Delayed, and Immediate. Permanent Violation Mode and Gauge Mode are continuations of these.

- While in Violation Modes, the Alternate Displays previously described can be accessed using the Advance (Front) button, and the Backlight can be activated using the Select (Side) button.
- While in Violation Modes, the ATMOS 2 will automatically revert to the Main Display after 3 seconds unless the Advance (Front) button is pressed to view another display of information.

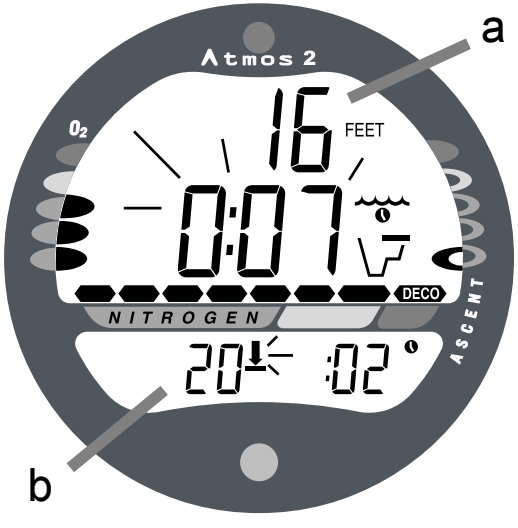


Fig. 52 - Conditional Violation

Conditional Violation Mode

The ATMOS 2 will enter the Conditional Violation Mode **if you ascend to a depth shallower (Fig. 52a) than the Required Decompression Ceiling** Stop Depth displayed (Fig. 52b).

- Unless set OFF (a user setting), the Audible Alarm will emit a continuous tone for 30 seconds or until acknowledged by pressing the Advance (Front) button.
- The Down Arrow, Deco Bar, and the Total Ascent Time display will flash until you descend below the Required Stop Depth.
- Also displayed will be Current Depth and applicable bar graphs.

If you descend below the required decompression ceiling before 5 minutes have elapsed, the ATMOS 2 will continue to function in Decompression Dive Mode. In this case, no off-gassing credit will be given, and for each minute above the ceiling $1^{1}/_{2}$ minutes of **Penalty Time** will be added to Required Stop Time.

The added Penalty (decompression) Time will have to be 'worked off' first, before obtaining off-gassing credit. Once the Penalty Time is worked-off, and off-gassing credit begins, required decompression Stop Depths and Time will decrease toward zero, then the Nitrogen Bar Graph will recede into the yellow Caution Zone and the ATMOS 2 will revert to the No Decompression Dive Mode.

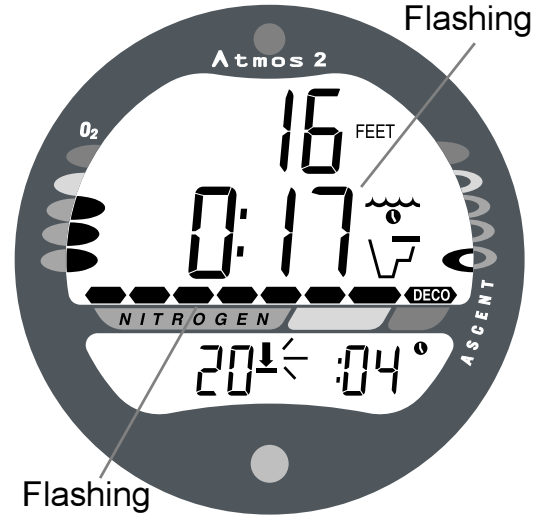


Fig. 53 - Delayed Violation #1

NOTE: Upon entry into Delayed Violation Modes, the Audible Alarm will sound, <u>even if it is user Set OFF.</u> It cannot be turned off (acknowledged) by pressing the Advance (Front) button.

Delayed Violation Mode #1 (Fig. 53)
If you remain above the Required Ceiling Stop Depth for 'more than 5 minutes', the Nitrogen Bar Graph and Total Ascent Time display will flash until you descend below the Required Stop Depth. This is a continuation of a Conditional Violation.

Delayed Violation Mode #2 (Fig. 54)
The ATMOS 2 cannot calculate decompression times for Stop Depths much greater than 60 feet (18 meters) and offers no indication of how much dive time would result in the need for a greater Stop Depth.

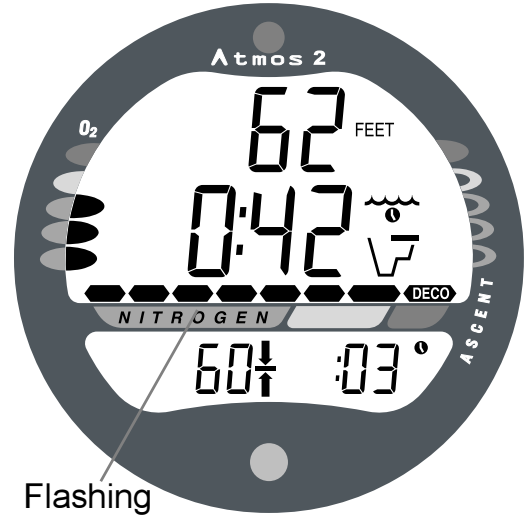


Fig. 54 - Delayed Violation #2

If your Decompression obligation requires a Ceiling Stop Depth 'between' 60 feet (18 meters) and 70 feet (21 meters), the Nitrogen Bar Graph will flash. Total Ascent Time will still be displayed.
You must ascend to just deeper than, and stay as close as possible to, 60 feet (18 meters) without causing the Total Ascent Time display to flash. When the Required Stop Depth indicates 50 FT/ 15 M, etc., you can ascend to those depths and continue decompressing.

Delayed Violation Mode #3 (Fig. 55)

If you descend deeper than 330 feet (99.5 meters), the Nitrogen Bar Graph will flash, and the Current Depth and Max Depth displays will only indicate 3 dashes (- - -).

Upon ascending above 330 feet (99.5 meters), the Current Depth display will be restored, however Max Depth will only display 3 dashes for the remainder of that dive. The Log for that dive will also only indicate 3 dashes as the Max Depth achieved.

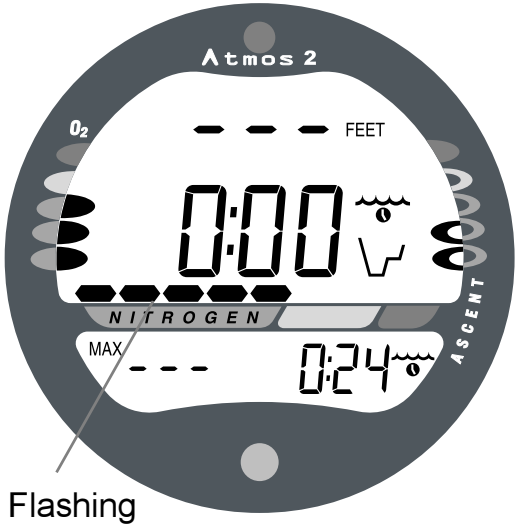


Fig. 55 - Delayed Violation #3

Immediate Violation Mode and Gauge Mode

The ATMOS 2 enters Immediate Violation Mode when a situation totally exceeds its capacity to predict an ascent procedure. These dives represent gross excursions into decompression that are beyond the boundaries and spirit of the ATMOS 2 design, and an ATMOS 2 should not be used for the dives.

During a Dive, if a ceiling much greater than 60 FT (18M) is required, an **Immediate Violation Mode** will be entered. This situation would be preceded by entering Delayed Violation Mode #2, previously described. The ATMOS 2 would then operate with limited functions in **Gauge Mode** during the remainder of that dive and for 24 hours after surfacing.

Gauge Mode turns the ATMOS 2 into a digital instrument without any decompression or oxygen monitoring functions. Only Current Depth, Max Depth, Elapsed Dive Time, and the Ascent Rate Indicator will be displayed (Fig. 56). The Nitrogen Bar Graph and O2 Bar Graph will flash as a warning of this condition.

- To view Temperature and Time of Day - press the Advance (Front) button.
- To activate the Backlight - press the Select (Side) button.

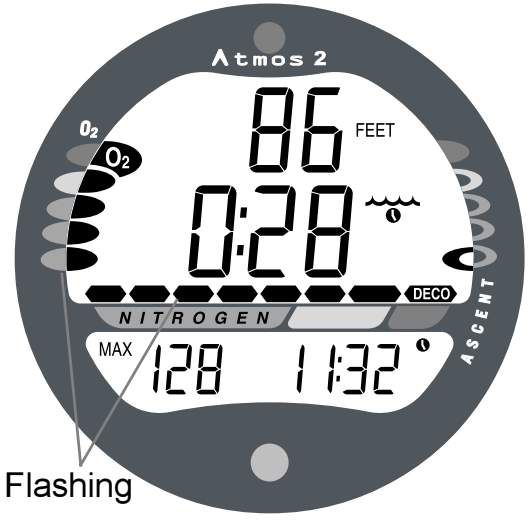


Fig. 56 - Immediate Violation Gauge Mode (underwater)

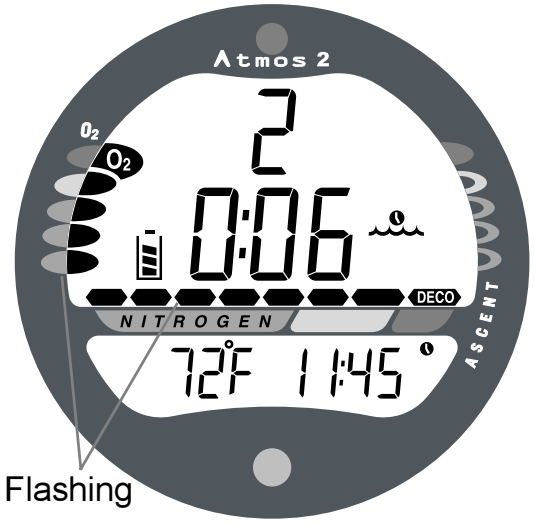


Fig. 57 - Immediate Violation Gauge Mode (after surfacing)

The ATMOS 2 will also enter an **Immediate Violation Mode** 5 minutes after reaching the Surface from a dive in which a Delayed Violation occurred. On the surface, **Gauge Mode** displays the Dive Number, Surface Interval, Temperature, and Time of Day with the full Nitrogen and O2 Bar Graphs flashing (Fig. 57). It does not provide the FO2, Dive Planner, or Time to Fly and Desaturate features. The countdown timer that appears when you try to access Time to Fly does not represent 'Time to Fly'. It is the time remaining before the ATMOS 2 can resume operation with full features and functions.

This condition previously described is considered a Permanent Violation, and in the event that a dive is made during the 24 hour period, a full 24 hour surface interval must then be served before all functions are restored.

Fig. 58 - PO2 Warning

HIGH PO2 DIVE MODE

As depth increases during a dive, the partial pressure of oxygen (PO2) increases. When PO2 becomes equal to, or greater than, **1.40 ATA, or 0.2 ATA less than the PO2 Alarm set point (a user setting);** the Audible Alarm will sound (unless set OFF), and the current PO2 value, PO2 symbol, O2 segment of the O2 Bar Graph, and UP Arrow will appear on the Main Display as a warning until PO2 decreases. Current Depth and Dive Time Remaining will also be displayed (Fig. 58).

If PO2 continues to increase, the value displayed will increase toward a maximum value of 5.00 ATA in increments of .01 ATA. When it reaches a value of **1.60 ATA**, **or the PO2 Alarm set point (a user setting),** the Audible Alarm will sound (unless set OFF) and the current PO2 value, PO2 symbol, O2 segment of the O2 Bar Graph, and UP Arrow will flash as a warning until PO2 decreases (Fig. 59).

WARNING: In the event that you enter High PO2 Dive Mode, you must immediately focus on reducing the partial pressure of oxygen by slowly ascending to a shallower depth at a safe rate in accordance with your nitrox training. If you continue the dive at your current depth, or descend deeper, your exposure to CNS oxygen toxicity will increase.

While in High PO2 Mode, the Alternate Displays previously described can be accessed using the Advance (Front) button, and the Backlight can be activated using the Select (Side) button.

- While in High PO2 Mode, the ATMOS 2 will automatically revert to the Main Display after 3 seconds unless the Advance (Front) button is pressed to view another display of information.

Fig. 59 - PO2 Alarm

HIGH OXYGEN ACCUMULATION

It is important that you understand that conducting repetitive dives using enriched nitrogen-oxygen (nitrox) mixtures can lead to oxygen buildup, reducing oxygen tolerance while increasing the risk of pulmonary oxygen toxicity.

AERIS strongly recommends that you avoid exceeding oxygen exposure limits, and reminds you that nitrox diving requires special training and understanding of the effects of oxygen toxicity.

The O2 Bar Graph provides a graphic representation of your oxygen accumulation, displaying either oxygen accumulated during that dive, or during the repetitive dives you conduct during that 24 hour period, whichever of the two is greater at that time. The yellow **Caution Zone** of the O2 Bar Graph offers you a convenient way to consistently monitor how close you are coming to the limits of oxygen exposure. **Use it as a visual reference to place a wider margin of protection between you and the Limits.**

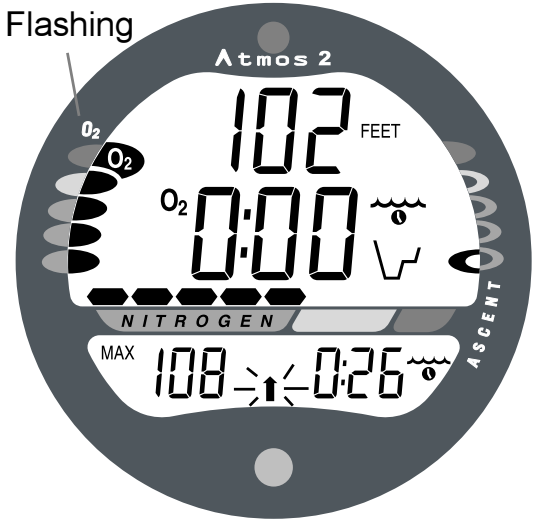


Fig. 60 - High O2 Warning

If the theoretical amount of oxygen accumulated equals, or exceeds, the limit for a single exposure, or the exposure limit for a 24 hour period, Oxygen Dive Time Remaining becomes zero (0:00) and the O2 Bar Graph will enter the red **O2 (Danger) Zone** (Fig. 60). The Audible Alarm will sound (unless set OFF) and the UP Arrow and the full O2 Bar Graph will flash as a warning until the level of oxygen decreases below the limit.

You must immediately focus on making a safe controlled ascent to the surface to prevent further exposure. As your accumulation (dose) decreases during your surface interval, the O2 bar graph will gradually recede into the yellow (caution) zone and green (normal) zone.

WARNING: In the event that you exceed the maximum per dive allowable oxygen exposure (dose), it is recommended that you allow a surface interval of at least 2 hours before reentering the water. If you exceed the maximum 24 hour period allowable oxygen exposure (dose), you must allow a surface interval of at least 24 hours before reentering the water.

- While in High O2 Mode, the Alternate Displays previously described can be accessed using the Advance (Front) button, and the Backlight can be activated using the Select (Side) button.
- While in High O2 Mode, the ATMOS 2 will automatically revert to the Main Display after 3 seconds unless the Advance (Front) button is pressed to view another display of information.

USER SET DIGITAL GAUGE MODE (Fig. 61)

Information displayed includes Current Depth, Elapsed Dive Time, Maximum Depth, and Time of Day.

Fig. 61 - User Set Gauge Mode

When Digital Gauge Mode is set for ON, the ATMOS 2 will operate as a digital Depth Gauge/Timer without performing nitrogen and oxygen calculations.

While in this mode, the range of the Current and Max Depth displays are extended to 399 feet (120 meters) to accommodate activities involving diving with advanced breathing gas mixtures or free diving beyond the normal depth limit of the unit.

NOTE: Once a dive is made with this feature set ON, the setting will be locked ON for 24 hours after the dive. Set Digital Gauge Mode will not appear as a selection for 24 hours after the dive.

WARNING: Prior to diving with the Atmos 2, you must also read and understand the AERIS Dive Computer Safety & Reference Manual, Doc. No. 12-7203, which provides Important Warnings and Safety Recommendations as well as general product information.

POST DIVE MODES

POST DIVE SURFACE MODE

When you ascend to 3 feet (1 meter) or shallower, the ATMOS 2 will enter Surface Mode and begin counting your surface interval.

TRANSITION PERIOD

The first 10 minutes is, in affect, a Transition Period during which time the following information is displayed (Fig. 62):

- 'Number' of that dive (during that day)
- Battery Consumption Indicator
- Surface Interval time (colon flashing) and icon (flashing). After 9:59 (hours:minutes), hours only will be displayed from 10 - to 23 - (hours - some minutes).
- Temperature (ambient)
- Time of Day and icon
- Nitrogen Bar Graph indicating current nitrogen loading
- O2 Bar Graph indicating current oxygen accumulation (if nitrox dive)

During the Transition Period, Log Mode can be accessed. No other modes (e.g., Plan, Fly, Desat, Set, PC, Sim) are accessible.

To activate the Backlight press the Select (Side) button.

Fig. 62 - Transition Period

To view that dive's Log (Fig. 63) -

Refer to page 68 for a description of the Log Mode and displays.

- press the Advance (Front) button **1 time**
- press the Select (Side) button **1 time** to view the Nitrogen data screen
- press the Select (Side) button **again** to view the Oxygen data screen (if a nitrox dive)
- press Both buttons simultaneously for 2 seconds to return to Surface Mode
- the unit will revert to Surface Mode after 2 minutes if no button is pressed

Log Data will not be stored in the unit's memory until the 10 minute Transition Period on the surface is completed.

Once 10 minutes have elapsed, the Surface Mode icon and Surface Interval time display colon stop flashing indicating that the Dive and Transition Period are completed, and a subsequent descent will be considered a new dive.

If you descend during the 10 minute Transition Period, time under-water will be considered a continuation of that dive. The time at the surface (if less than 10 minutes) will not be added as Dive Time.

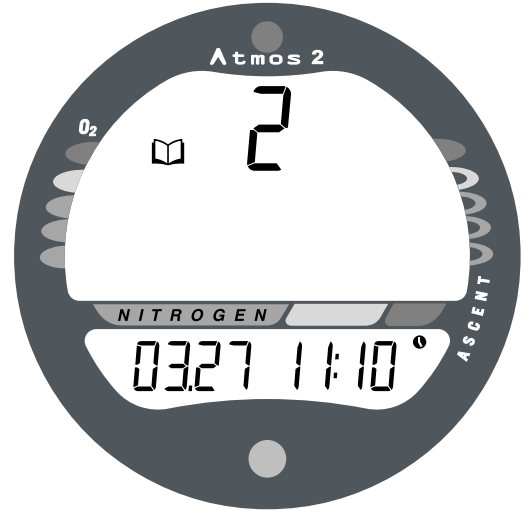


Fig. 63 - Log Mode

Fig. 64- Surface Mode

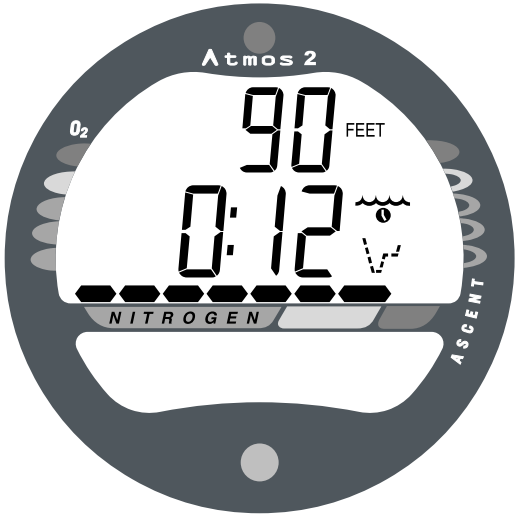


Fig. 65 - Plan Mode

AFTER THE TRANSITION PERIOD (THE FIRST 2 HOURS)

For the remainder of the **first 2 hours after surfacing**, information will be displayed as Surface Mode (Fig. 64) and you will have full access to other modes (e.g., Plan, Fly, Desat, Log, Set, PC, Sim).

To activate the **Backlight**, press the Select (Side) button.

To access the Dive Planner (Plan Mode) -

- press the Advance (Front) button 1 time (while in Surface Mode)
- press and release the Select (Side) button to advance through the sequence of available 'adjusted' depths/times one screen at a time.
- The unit will revert to Surface Mode after 2 minutes, unless the Advance (Front) button is pressed to access the Fly Mode.

The Dive Planner now shows 'adjusted' No Decompression Limits (Fig. 65) based on residual nitrogen and accumulated oxygen calculated to be remaining from the previous dives.

△ **NOTE: The Planning Sequence will only advance to the maximum depth allowed by the nitrogen or oxygen limit, whichever is in control. The respective bar graph will be displayed to indicate which is in control.**

To access the Time to Fly Countdown -

- press the Advance (Front) button **2 times** (while in Surface Mode)
- The unit will revert to Surface Mode after 2 minutes, unless the Advance (Front) button is pressed to access the Desat Time Countdown.
- If a violation occurred during the dive a single dash (-) will appear instead of the graphic FLY.

The Time to Fly counter (Fig. 66) is provided to assist you with deciding when enough surface time has elapsed to fly (or travel to higher elevations). It begins counting down 10 minutes after surfacing from a dive (after the Transition Period) displaying the graphic **FLY** and a countdown that begins at 23:50 (hr:min) and counts down to 0:00 (hr:min).

Two hours after the last dive, the Time to Fly and Desaturation countdowns will be displayed alternately for 3 seconds each until they count down to 0:00 or another dive is made. Access to other modes is gained by pressing Either button to return to Surface Mode.

After a surface interval of 12 hours, you may choose to fly (or travel to higher elevations), provided that your dive profile(s) did not enter decompression. If your diving involved decompression or a repetitive, multi day profile, it is strongly recommended that you wait a full 24 hours after your last dive to add a greater degree of protection.

As you should be aware from your own training, the longer you wait to fly (or travel to higher elevations) after diving, the more you will reduce your exposure to decompression sickness.

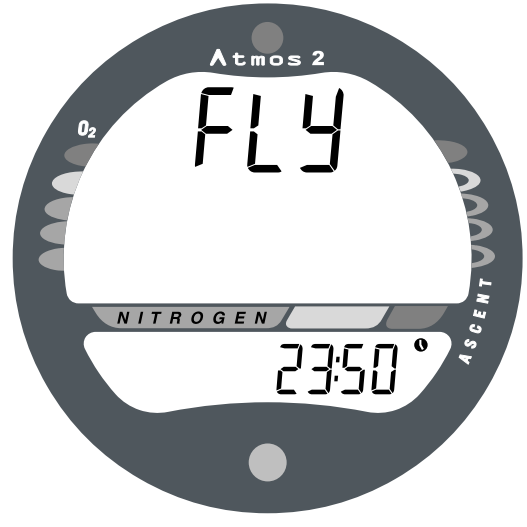


Fig. 66 - Time to Fly

To access the Time to Desaturate Countdown -

- press the Advance (Front) button **3 times** (while in Surface Mode)
- The countdown starts 10 minutes after surfacing at 23:50 (hr:min) maximum and counts down to 0:00 (hr:min). The Time to Desaturate Countdown displays the graphic SAT and a counter (Fig. 67) that provides calculated time for tissue desaturation (release of nitrogen loading) at sea level.
- If a violation occurred during the dive, Desaturation Time will not be displayed.
- The unit will revert to Surface Mode after 2 minutes, unless the Advance (Front) button is pressed to access the Log Mode.
- Two hours after the last dive, the Time to Fly and Desaturation countdowns will be displayed alternately for 3 seconds each until they count down to 0:00 or another dive is made. Access to other modes is gained by pressing Either button to return to Surface Mode.

Fig. 67 - Time to Desaturate

LOG MODE

Information from your latest 24 dives is stored in the **Log** for viewing. The first dive of a new Activation Period will be #1, then #2, etc. After 24 dives are accumulated, each subsequent dive will overwrite the oldest dive in the Log (i.e., the most recent dive deletes the oldest). Log information will not be lost when the battery is removed, but factory service will delete data.

Dives are displayed in a reverse sequence that starts with the dive most recently recorded back to the oldest of the 24 dives stored. Thus, your most recent dive will always be the first shown in the sequence. Log screens are Date/Time started, Nitrogen data, and Oxygen data.

Button Control in Log Mode -

- The Advance (Front) button is used to access a specific dive's Log.
- The Select (Side) button is used to view the second and third screens (Nitrogen and Oxygen related data) for that dive.
- To return to Surface Mode at any time while in Log Mode, press Both buttons simultaneously for 2 seconds.
- The unit will automatically revert to Surface Mode after 2 minutes if no button is pressed while in the Log Mode.

HINT: To bypass a dive's Log and search for another in the sequence, press the Advance (Front) button repeatedly. Do not press the Select (Side) button until you find the dive Log you wish to view. Dives are identified by the Date/Time started and 'number' for that day.

To access the Log Mode and view the First Screen (Fig. 68) -

- press the Advance (Front) button **4 times** (while in Surface Mode)
- the first screen of the most recent dive will appear displaying -
  - the Log Mode icon
  - Dive Number (for that period of activation)
  - Date/Time of Day that the dive started

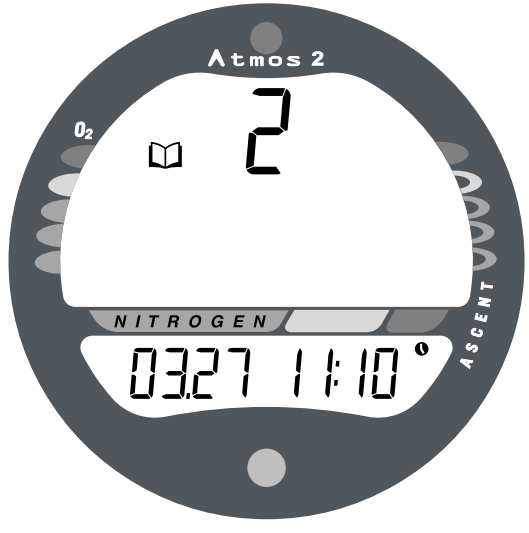


Fig. 68 - Log (1st screen)

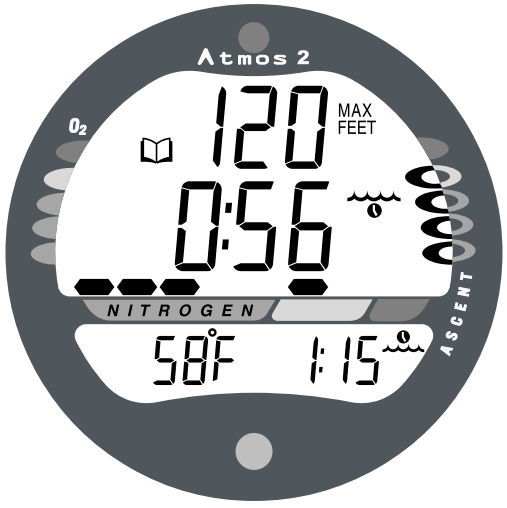


Fig. 69 - Log (2nd screen)

<u>To view the Second Screen of the Log (Nitrogen data)</u> (Fig. 69)

- press the <u>Select (Side)</u> button **1 time** (while viewing screen 1).

Displayed will be -

- Log Mode icon
- Max Depth - reached during the dive (and graphic)
- Elapsed Dive Time (and icon)
- Temperature - minimum during that dive (and icon)
- Surface Interval - prior to that dive (and icon)
- Variable Ascent Rate Indicator - showing the maximum ascent rate maintained for 4 consecutive seconds during the dive.
- Nitrogen Bar Graph - showing tissue nitrogen loading at the time you surfaced at the end of the dive. Also, the segment that reflects the maximum loading will appear flashing.

Fig. 70 - Log (3rd screen)

<u>To view the Third Screen of the Log (Oxygen data)</u> (Fig. 70) -

- press the Select (Side) button 1 time (while viewing screen 2).

Displayed will be -

- Log Mode icon and FO2 graphic
- FO2 value - set for that dive
- Max PO2 level - reached during that dive (and PO2 graphic)
- O2 Bar Graph - showing oxygen loading at the end of the dive.

<u>To access the first screen of the previous dive's Log -</u>

- press the <u>Advance (Front)</u> button **1 time**

AFTER THE FIRST 2 HOURS

Two hours after the last dive Surface Mode will no longer be displayed, the Time to Fly and Desaturation countdowns will be displayed alternately for 3 seconds each until they count down to 0:00 or another dive is made.

To access other modes or enter settings -

- press Either button to return to Surface Mode.
- the unit will again revert to the Time to Fly and Desaturation countdowns after 2 hours, if no button is pressed.

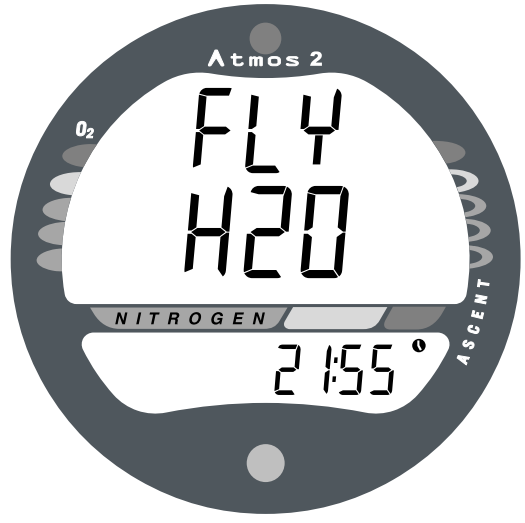


Fig. 71 - Fly Mode
(Activation Contacts Wet)

Wet Contacts

If the graphic **H2O** appears during the Fly Mode (Fig. 71) and Desaturation Mode (Fig. 72) countdowns, it is an indication that the water activation contacts are bridged (still wet) and the unit must be rinsed in fresh water and thoroughly dried.

- Once the unit is dry, the graphic **H2O** will disappear.
- If the unit is not cleaned and dried prior to the countdowns reaching 0:00 (hr:min), or making another dive, it will shut off then automatically reactivate.
- The graphic H2O would then appear in place of Dive Number when Surface Mode is displayed during the Surface Mode.
- If no dive is made, the unit would shut off after 2 hours, then automatically reactivate again, repeating the action until cleaned and dried.

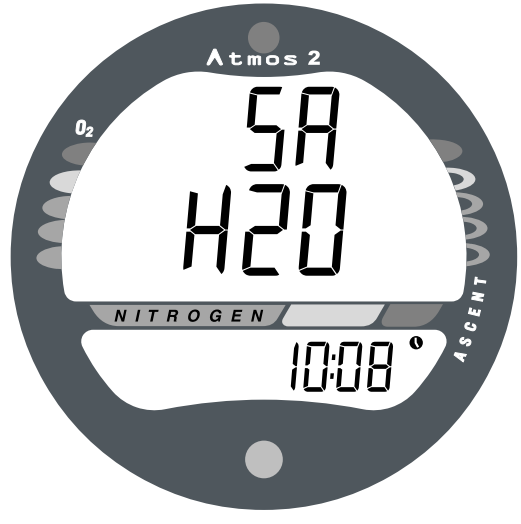


Fig. 72 - Desaturation Mode
(Activation Contacts Wet)

DOWNLOADING DATA TO A PC

Using special linking hardware dive data can be downloaded (copied) from your ATMOS 2 to an IBM compatible PC program running on a Windows® operating system.

Compatibility requirements and instructions are provided with the optional download package that is available from your Authorized AERIS Dealer.

NOTE: Ensure that the download product that you acquire is compatible with the ATMOS 2 and the PC equipment that you will be using.

The software program provides tabular and graphic profile data sampled throughout the dives.

Fig. 73 - PC Interface

The Interface Cable will be connected to the Data Port located on the side of the ATMOS 2 housing.

Prior to attempting to download data from your ATMOS 2, refer to the instructions provided in the User Manual that is incorporated into the CD for the Universal Downloader.

Refer to page 30 of this manual for instructions regarding access to PC Interface (Fig. 73).

RESET (CLEAR) FEATURE

WARNING: Reset after a dive and subsequent use for a repetitive dive conducted by the same diver could result in serious injury to or death.

This dive computer is configured with a RESET feature that allows data to be cleared, including Nitrogen and Oxygen calculations, FO2 set point, and Log Mode entries.

RESET PROCEDURE:

- While in Surface Mode (new activation period or after a 10 minute post dive surface interval), press the Advance (Front) button 1 time to access Plan Mode.
- While 30 feet (or 9 meters) is displayed in the Plan Mode, press and hold Both buttons until SET 2 appears, then release the buttons.
- Press and release the Advance (Front) button to display the Clear screen (Fig. 74). The first 2 digits of the KEY CODE flash.
- If necessary to change the number, press and release the Select (Side) button until the digits to change to **01**.
- Press and release the Advance (Front) button again to display the second 2 digits of the KEY CODE, flashing.
- If necessary to change the number, press and release the Select (Side) button until the digits change to **01**.
- Press and release the Advance (Front) button to complete the RESET operation and turn the unit OFF.

Fig. 74 - Clear (Reset)

(This page intentionally left blank)

WARNING: Prior to diving with the Atmos 2, you must also read and understand the AERIS Dive Computer Safety & Reference Manual, Doc. No. 12-7203, which provides Important Warnings and Safety Recommendations as well as general product information.

SIMULATOR (DEMO) MODE

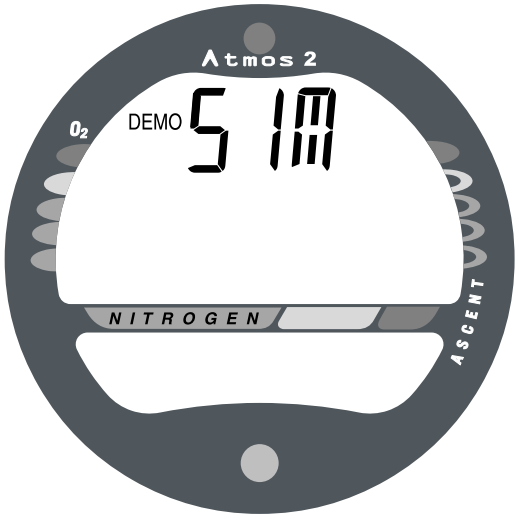


Fig. 75 - Simulator Mode

SIMULATOR MODE

This mode provides you with the ability to practice various dive mode scenarios and computer functions while observing the various displays.

- At any time while in Simulator Mode, pressing and holding both buttons simultaneously for 2 seconds shall revert operation to real Surface Mode.
- The set points entered into the ATMOS 2 do not affect the operation of the Simulator which has its own settings that allow Digital Gauge Mode to be set ON or OFF, calculations to be cleared, and FO2 to be set.

Access and Setup (while in Surface Mode)

- Press and hold Both buttons for 6 seconds.
- Release the buttons during the 2 second window when the **SIM** graphic appears (Fig. 75).
- Press and release the Advance (Front) button to access Simulator Mode. The graphics **DEMO** and **GAUG** will appear with **OFF** (or ON) flashing (Fig. 76).

Fig. 76 - Set Demo Gauge

When Gauge is set ON, the Simulator will operate as the unit would in normal User Set Digital Gauge Mode, only displaying Depth, Max Depth, Elapsed Dive Time, and Time of Day. When set OFF, it operates as it would as an Air or Nitrox computer.

- Press and release the Select (Side) button to toggle between ON and OFF.
- Press and release the Advance (Front) button to accept the setting and advance to DEMO: NI-O2 with CUR (or NEW) flashing (Fig. 77).

When set for NEW, calculations are based on zero residual nitrogen and oxygen loading (a clean dive). When set for CUR, calculations take into consideration any calculated residual nitrogen and oxygen remaining from previous 'actual' dives. Subsequent (repetitive) Simulated dives will not take into consideration data from previous Simulated dives.

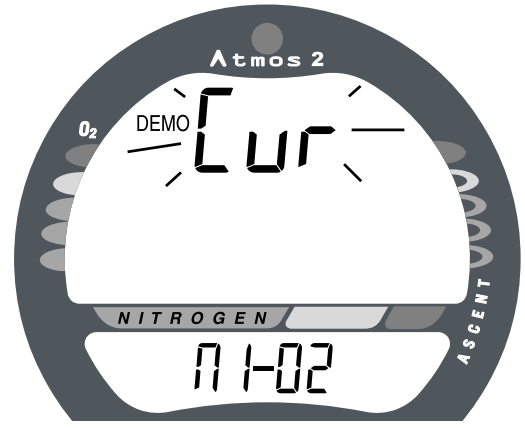


Fig. 77 - Set Demo Calibration

- Press and release the Select (Side) button to toggle between NEW and CUR.
- Press and release the Advance (Front) button to accept the setting and advance to Demo Surface Mode with the DEMO graphic flashing (Fig. 78).
- Press and release the Advance (Front) button to advance to DEMO: FO2 with Air (or a numerical value) flashing (Fig. 79).
- Press and release the Select (Side) button to advance the FO2 setting from AIR to 21 through 50, in increments of 1%.
- Press and release the Advance (Front) button to accept the setting and revert to Demo Surface Mode with the DEMO icon flashing.

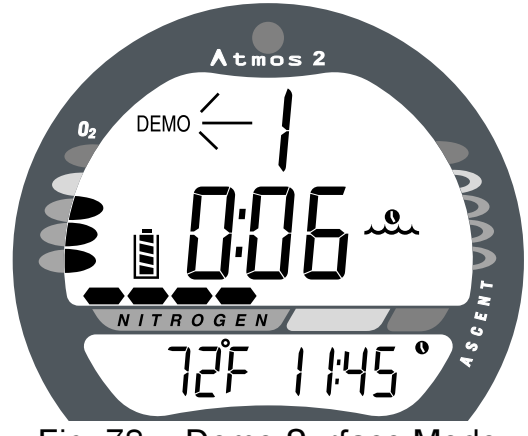


Fig. 78 - Demo Surface Mode

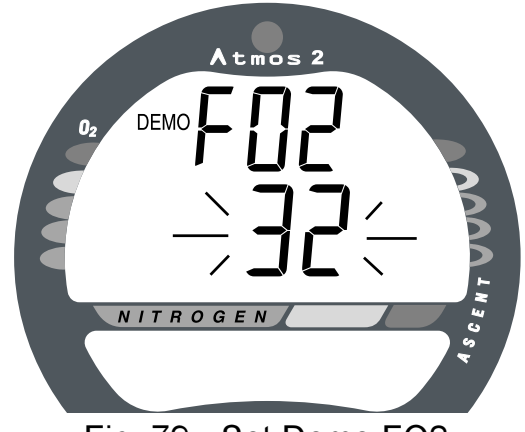


Fig. 79 - Set Demo FO2

Fig. 80 -Simulated Descent

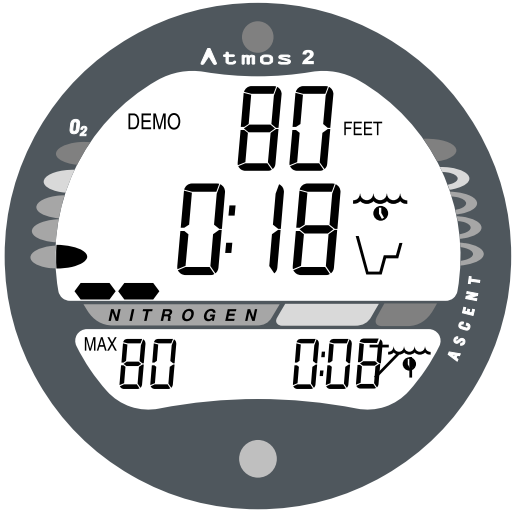


Fig. 81 -Time Acceleration

Descending

- Press and hold the Select (Side) button for 2 seconds to access Dive Mode. The **DOWN Arrow** will appear flashing (Fig. 80).
- Press and release the Select (Side) button to begin a Descent at a rate of 5 feet (1.5 m) per real time second.
- Press and release the Select (Side) button during the Descent to stop the Descent.

- During the Descent, pressing and releasing the Advance (Front) button provides access to the Alternate Displays.

- Press and hold the Select (Side) button for 4 seconds to access **Time Acceleration**. The small clock icon will begin flashing (Fig. 81).
- Press and release the Select (Side) button to increase Elapsed Dive Time 1 minute per real time second.
- Press and release the Select (Side) button during Time Acceleration will restore normal time rate of one second per real second.

- To exit Simulator operation at this time, press and holding Both buttons simultaneously for 2 seconds to revert operation to real Surface Mode. To make a Simulated Ascent, continue as follows.

Ascending

- Press and hold the Advance (Front) button for 2 seconds to access Ascent. The **UP Arrow** will appear flashing (Fig. 82).
- Press and release the Advance (Front) button **again** to begin an Ascent at a rate of 60 feet (18 meters) per minute at depths deeper than 60 feet (18 meters), or a rate of 30 feet (9 meters) per minute at depths of 60 feet (18 meters) and shallower.
- Press and release the Advance (Front) button during the Ascent to stop the Ascent.

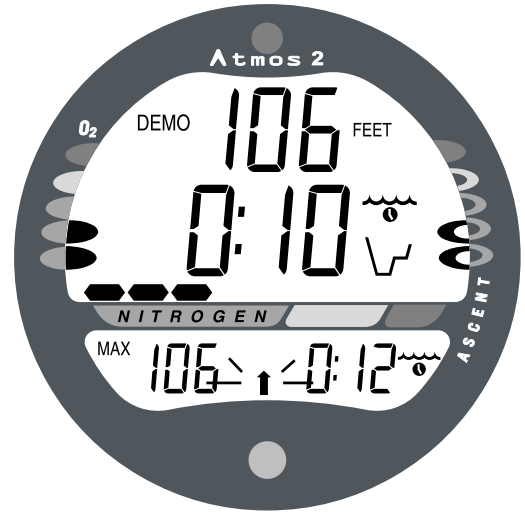


Fig. 82 - Simulated Ascent

- Alternate Displays cannot be accessed during Simulated Ascent.

- Press and release the Advance (Front) button to **accelerate** the Ascent Rate to 180 feet (54 meters) per minute (Fig. 83).
- Press and release the Advance (Front) button during the Accelerated Ascent stops the Ascent, but does not restore normal Ascent Rate. Pressing and holding the button for 2 seconds will acknowledge and disable the alarm, however the Accelerated rate will continue. To slow the Ascent, press the Advance (Front) button momentarily.

- To exit Simulator Mode, press and hold Both buttons simultaneously for 2 seconds to revert operation to real Surface Mode.

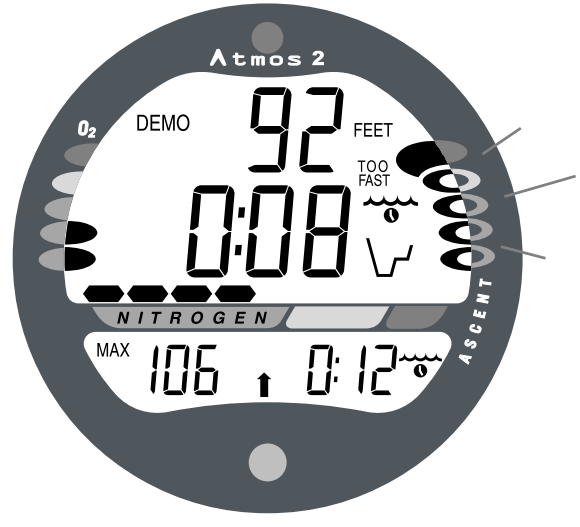


Fig. 83 - Ascent Accelerated

Simulated Post Dive Surface Mode

- The Simulator will enter Demo Surface Mode (Fig. 84) upon ascending to 3 feet (1 meter) or shallower.
- Press and hold the Select (Side) button for 4 seconds to access **Time Acceleration**. The small time clock icon begins flashing.
- Press and release the Select (Side) button to increase Surface Interval Time 1 minute per real time second.
- Press and release the Select (Side) button during the Time Acceleration to restore the normal time rate of 1 second per real second.
- Press and release the Advance (Front) button to access FO2 Set Mode. The FO2 graphic and value previously set will appear with the value flashing.
- Press and release the Select (Side) button to increase the FO2 value in increments of 1%.
- Press and release the Advance (Front) button to accept the setting and return to Demo Surface Mode.
- Press and hold the Select (Side) button for 2 seconds to access Dive Mode for a repetitive dive. The DOWN Arrow will appear flashing.

- Pressing and holding Both buttons simultaneously for 2 seconds will revert operation to real Surface Mode.

Fig. 84 - Demo Surface Mode

WARNING: Prior to diving with the Atmos 2, you must also read and understand the AERIS Dive Computer Safety & Reference Manual, Doc. No. 12-7203, which provides Important Warnings and Safety Recommendations as well as general product information.

GENERAL

CARE AND CLEANING

Protect your ATMOS 2 from shock, excessive temperatures, chemical attack, and tampering. Protect the lens against scratches with a transparent Instrument Lens Protector. Small scratches will naturally disappear underwater.

⚠ CAUTION: Never spray aerosols of any kind on, or near, the instrument. The propellants may chemically attack the plastic.

- Soak and rinse the ATMOS 2 in fresh water at the end of each day of diving, and check to ensure that the areas around the low pressure (depth) sensor (Fig. 85), download interface port, and buttons are free of debris or obstructions.
- To dissolve salt crystals, use lukewarm water or a slightly acidic white vinegar/water bath.
- After removal from the bath, place the unit under gently running water and towel dry before storing.
- Transport your unit cool, dry, and protected.

Fig. 85 -Depth Sensor

⚠ WARNING: Never force any object through any slots or holes of the Housing. Doing so may damage the depth sensor, possibly resulting in erroneous depth and/or dive time remaining displays.

WARNING: If a Low Battery Condition is indicated prior to a dive, DO NOT attempt to dive with the ATMOS 2 until the battery is replaced.

INSPECTIONS AND SERVICE

Your ATMOS 2 should be **inspected annually** by an Authorized AERIS Dealer who will perform a factory prescribed function check and inspection for damage or wear. To keep the 2 year limited warranty in effect, this inspection must be completed one year after purchase (+/- 30 days).

AERIS recommends that you continue to have this inspection performed every year to ensure it is working properly.

The costs of annual inspections are not covered under the terms of the 2 year limited warranty.

WARNING: If you are in doubt about the accuracy of your ATMOS 2'S depth readings, DO NOT attempt to dive with it until it has been inspected by AERIS Customer Service.

It is possible to damage the depth sensor of the ATMOS 2 if it is not pressure tested properly. Ensure that the Dealer adheres to the following warning.

WARNING: Ensure that the ATMOS 2 is never pressure tested in an air environment. Doing so may damage the depth sensor, possibly resulting in erroneous depth or time readings.

To Obtain Service

Take you ATMOS 2 to an Authorized AERIS Dealer or send it to the nearest AERIS Regional Distributor Facility.

To return your ATMOS 2 to AERIS:

- Record all dive data in the Log and/or download the data in memory. All data will be erased when it receives factory service.
- Package it using a protective cushioning material.
- Include a legible note stating specific reason for return, your name, address, daytime phone number, serial number, and a copy of your original sales receipt and Warranty Registration Card.
- Send freight prepaid and insured using a traceable method to the nearest AERIS Regional Service Facility, or to AERIS.
- Non-warranty service must also be prepaid (call for an estimate). COD is not accepted.
- If you have any questions regarding service, call AERIS Customer Service at (510) 346-0010, 8 to 5 PST, or E-mail them to info@diveaeris.com.

BATTERY REPLACEMENT

The battery compartment should only be opened in a dry and clean environment with extreme care taken to prevent the entrance of moisture or dust.

As an additional precautionary measure to prevent formation of moisture in the battery compartment, it is recommended that the battery be changed in an environment equivalent to the local outdoor temperature and humidity (e.g., do not change the battery in an air conditioned environment then take it outside during a hot sunny day).

The procedures that follow must be closely adhered to. Damage due to improper battery replacement is not covered by the ATMOS 2's 2 year warranty.

Battery Hatch Removal

- Inspect the Button, Lens, and Housing to ensure they are not cracked or damaged.
- If there is any sign of moisture in the module, DO NOT use the ATMOS 2 until it receives proper service by an Authorized Aeris Dealer, or the Aeris factory.
- Locate the Battery Compartment on the back of the Housing.
- While applying steady inward pressure on the clear Battery Hatch, rotate the Hatch Ring clockwise 10 degrees by pressing on the upper/right arm of the Ring with a small blade screwdriver (Fig. 86).
- If available, an adjustable face spanner tool or a pair of pointed pliers can be used instead of the screwdriver by inserting the tips of the tool in the small holes in the Ring (Fig. 87).
- Lift the Hatch Ring up and away from the Housing.
- Remove the clear Battery Hatch.

Fig. 86 -Ring Removal

Fig. 87 - Ring Removal (alternate)

WARNING: If damage, moisture, or corrosion is found, it is recommended that you return your ATMOS 2 to an Authorized AERIS Dealer, and DO NOT attempt to use it until it has received factory prescribed service.

NOTE: If the old battery can be removed and the new one inserted within 8 seconds, nitrogen and oxygen calculations ,and settings, will be retained for repetitive dives.

Battery Removal

- Remove the Retaining Bar located across the lower portion of the Battery (Fig. 88a).
- Remove the Hatch O-ring. DO NOT use tools.
- Using care not to damage the Battery Contacts (Fig. 88 b/c), slide the Battery up and out of the right side of the Battery Compartment.

CAUTION: Do not allow a metal object to short circuit the top of the Battery which is positive (+) to the negative (-) contact of the Battery Compartment.

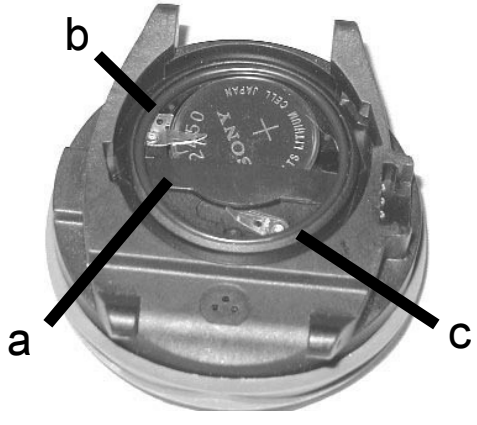


Fig. 88 - Battery Compartment

- Closely check all of the sealing surfaces for any signs of damage that might impair proper sealing.
- Inspect the Buttons, Lens, and Housing to ensure they are not cracked or damaged.
- If it is necessary to clean the Battery Compartment, flush it and all components with a solution of 50% white vinegar and 50% fresh water. Rinse with fresh water, and allow to dry overnight, or blow dry with a hair dryer (set at 'no heat').

Battery Installation

- Slide a **new** 3 volt type CR2450 Lithium Battery, negative (-) side down into the Battery Cavity from the right side and ensure that it slides under the contact clip on the left rim of the cavity.
- Orient the Retaining Bar across the lower portion of the Battery and carefully push it down into position (Fig. 89).

Fig. 89 - Battery Installation

Battery Hatch and Hatch Ring Installation

- Lightly lubricate the **new** Hatch O-ring with silicone grease and place it on the inner rim of the Battery Hatch. Ensure that it is evenly seated. This O-ring must be a genuine AERIS part that can be purchased from an Authorized AERIS Dealer. Use of any other O-ring will void the warranty.
- Slide the Hatch Ring, top portion first (small opening), onto your thumb (Fig. 90).
- Carefully place the clear Battery Hatch (with O-ring) into position on the rim of the Battery Compartment, then press it evenly and completely down into place with your same thumb.
- Maintain the Battery Hatch securely in place and, using your other hand, slide the Hatch Ring down off your thumb and into position around the Battery Compartment. The tabs on the Ring fit down into the slots located at the 2 and 9 o'clock positions (Fig. 91).

Fig. 90 -Hatch Installation

Fig. 91 -Orientation of Hatch Ring

(continued on page 88)

Fig. 92 -Ring Installation

- Using your fingers, turn the Ring counter clockwise 5 degrees until the tabs engage, then tighten it 5 more degrees by turning it counter clockwise with the aide of a small blade screwdriver, pressing against the upper/left arm of the Ring (Fig. 92).

NOTE: If available, an adjustable face spanner tool or pair of pointed pliers can be used by placing the tips in the small holes of the Ring (Fig. 93).

Inspection

- Activate the unit and watch carefully as it performs a full diagnostic and battery check, and enters Surface Mode. Observe the LCD display to ensure it is consistently clear and sharp in contrast throughout the screen.

WARNING: If any portions of the display are missing or appear dim, or a Low Battery condition is indicated, return your ATMOS 2 to an Authorized AERIS Dealer for a complete evaluation before attempting to use it.

Fig. 93 -Ring Installation (alternate)

ALTITUDE SAMPLING/COMPENSATION

Atmospheric pressure decreases as altitude increases above sea level. Weather systems and ambient temperature also affect barometric pressures. Consequently, depth reading instruments that do not compensate for the decrease in pressure indicate depth readings shallower than the depth they are actually at.

The ATMOS 2 automatically compensates for decreased ambient pressure when activated at high altitudes up to 14,000 feet (4,270 meters). Its program contains a high altitude algorithm that reduces no decompression and oxygen exposure limits to add a larger zone of caution.

The ATMOS 2 senses ambient pressure when it is activated, every 15 minutes while it is activated, or every 30 minutes when it is not activated. At an Altitude of 2,000 feet (610 meters), it will automatically recalibrate itself to measure depth in feet of fresh water rather than feet of sea water. It will then readjust the no decompression and oxygen limits at additional intervals of 1,000 feet (305 meters). Therefore, when returning to lower Altitudes, diving should not be conducted until the unit automatically clears of any residual nitrogen and oxygen loading and resets to operate at the new lower Altitude.

WARNING: The ATMOS 2 will not sense ambient pressures or provide Altitude compensation when it is wet. DO NOT dive at any different Altitude until the unit shuts off and is reactivated at the new Altitude. If the unit is activated at elevations higher than 14,000 feet (4,270 meters), it will perform a diagnostic check followed by immediate shutdown.

SPECIFICATIONS

CAN BE USED AS

- Air Computer
- Nitrox Computer
- Digital Depth Gauge/Timer

NO DECOMPRESSION MODEL

Basis:

- Modified Haldanean Algorithm
- 12 tissue compartments

Data Base:

- Diving Science and Technology (DSAT) - Rogers/ Powell

Performance:

- Tissue compartment halftimes (mins.) Spencer's "M" values
  5, 10, 20, 40, 80, 120, 160, 200, 240, 320, 400, 480
- Reciprocal subsurface elimination
- 60 minute surface credit control for compartments faster than 60 minutes
- Tissue compartments tracked up to 24 hours after last dive

Decompression Capabilities:

- Decompression stop ceilings at 10, 20, 30, 40, 50, & 60 ft (3, 6, 9, 12, 15, & 18 m)

Altitude Algorithm:

- Based on NOAA tables

Oxygen Exposure Limits:

- Based on NOAA tables

OPERATIONAL MODES

- Activation/Diagnostic
- Surface
- Dive Planner
- Time to Fly Countdown
- Desaturation Countdown
- Dive Log (Date / Time, Nitrogen, & Oxygen)
- Reset (Clear)

- Set Mode 1:
  - FO2 (Air, 21 - 50% O2)
  - Max Depth Alarm (30 - 300 ft /10-99 m)
  - Elapsed Dive Time Alarm (0:10 - 3:00 hr:min)
  - PC Interface (to Download data)

- Set Mode 2:
  - Units of Measure (Imperial / Metric)
  - Hour Format (12 / 24)
  - Time (Hour, Minute)
  - Date (Year, Month, Day)
  - Audible Alarm / LED Warning (On/Off)
  - Max Nitrogen Bar Graph Alarm (1 - 8 segments)
  - Dive Time Remaining Alarm (0:00 - 0:20 min)
  - Max PO2 Alarm (1.20 - 1.60 ATA)
  - FO2 50% Default (On/Off)
  - Backlight Duration (0 / 3 / 7 sec)
  - Sampling Rate (2 / 15 / 30 / 60 sec)
  - Digital Gauge Mode (On / Off)
  - Water Activation (On / Off)

- Simulator (Demo) Mode

SPECIFICATIONS (CONTINUED)

OPERATIONAL MODES (continued)

- No Decompression Dive:
  - #1 (Current Depth, Dive Time Remaining, Max Depth, Elapsed Dive Time, Bar Graphs)
  - #2 (Current Depth, Dive Time Remaining, Temperature, Time of Day, Bar Graphs)
  - #3 - only if a nitrox dive (Current Depth, Dive Time Remaining, Current PO2, Bar Graphs)
  - Safety Stop - for dives deeper than 30 feet (9 meters)
- Decompression Dive:
  - Main - default (Current Depth, Total Ascent Time, Stop Depth / Time, Bar Graphs)
  - Alternate #1 (Current Depth, Total Ascent Time, Max Depth, Elapsed Dive Time, Bar Graphs)
  - Alternate #2 - only if set for a nitrox dive (Current Depth, Total Ascent Time, Current PO2 value, Bar Graphs)
- Violation (Conditional, Delayed, & Immediate/Gauge)
- High PO2 (1.20 - 1.60 ATA)
- High Oxygen Accumulation (allowed per dive or 24 hour period)

DISPLAY RANGE/RESOLUTION

Numeric Displays:	Range:	Resolution:
• Dive Number	0 - 24	1
• Depth	0 - 399 ft (0 - 120 m)	1 ft (.1 m / 1 m > 99.9 m)
• Maximum Depth	399 ft (120 m)	1 ft (.1 m / 1 m > 99.9 m)
• FO2 Set Point	Air, 21 - 50 %	1 %
• PO2 Value	0.00 - 5.00 ATA	.01 ATA
• Dive Time Remaining	0:00 - 9:59 hr:min	1 minute
• Total Ascent Time	0:00 - 9:59 hr:min	1 minute
• Decompression Stop Time	0:00 - 9:59 hr:min	1 minute
• Elapsed Dive Time	0:00 - 9:59 hr:min	1 minute
• Surface Time	0:00 - 9:59 hr:min,10 - 23 - hr	1 minute, hours (after 9:59)
• Dive Log Surface Interval	0:00 - 9:59 hr:min,10 - 23 - hr	1 minute, hours (after 9:59)
• Temperature	0 - 99 degrees	1 degree

SPECIFICATIONS (CONTINUED)

DISPLAY RANGE/RESOLUTION (continued)

Numeric Displays:	Range:	Resolution:
• Time to Fly	23:50 - 0:00 hr:min* (* starting 10 min after the dive)	1 minute
• Time to Desaturate	23:50 (max) - 0:00 hr:min* (* starting 10 min. after the dive)	1 minute
• Temperature	0 to 99°F (-9 to 60°C)	1°

Special Displays:	Occurrence
• Diagnostic Display	After Manual Activation
• Out of Range (- - -)	>330 feet (>99.9 meters)
• Gauge Mode Countdown Timer	23:50 to 0:00 hr:min (after violation)

BAR GRAPHS

Nitrogen Bar Graph:	segments
• No Decompression zone (green)	5
• No Deco Caution zone (yellow)	2
• Decompression Warning zone (red)	1

Oxygen (O2) Bar Graph:	segments
• Normal zone (green)	3
• Caution zone (yellow)	1
• Danger zone (red)	1

Ascent Rate Indicator:	60 feet (18 m) & Shallower			Deeper than 60 feet (18 m)		
	segments	feet/min	meters/min	segments	feet/min	meters/min
	0	0 - 10	0 - 3	0	0 - 20	0 - 6
• Normal Zone (Green)	1	11 - 15	3.5 - 4.5	1	21 - 30	6.5 - 9
• Normal Zone (Green)	2	16 - 20	5 - 6	2	31 - 40	9.5 - 12
• Normal Zone (Green)	3	21 - 25	6.5 - 7.5	3	41 - 50	12.5 - 15
• Caution Zone (Yellow)	4	26 - 30	8 - 9	4	51 - 60	15.5 - 18
• Too Fast Zone (Red - flashing)	5	> 30	> 9	5	> 60	> 18

SPECIFICATIONS (CONTINUED)

OPERATIONAL PERFORMANCE

Function:	Accuracy:
• Depth	±1% of full scale
• Timers	1 second per day

Dive Counter:
- Displays Dives #1 to 24, 0 if no dive made yet
- Resets to Dive #1, after #24 or upon reactivation after having shut Off

Dive Log Mode:
- Stores 24 most recent dives in memory for viewing
- After 24 dives, adds 25th dive in memory and deletes the first dive

Altitude:
- Operational from sea level to 14,000 feet (4,267 meters) elevation
- Samples Ambient Pressure every 30 minutes when not activated, when manually activated, and every 30 minutes while activated. Does not sample Ambient Pressure while it is wet.
- Adjusted No Decompression and O2 Limits and recalibration of depth readings at elevations between 2,000 feet (610 meters) and 14,000 feet (4,267 meters) at intervals of 1,000 feet (305 meters).

Power:

• Battery	1 - 3 vdc, type CR2450 Lithium battery
• Shelf life	Up to 5 years
• Replacement	User replaceable (annual recommended)
• Life expectancy	100 dive hours (if 1 - 1 hour dive per dive day) to over 300 dive hours (if 3 - 1 hour dives per dive day)

SPECIFICATIONS (CONTINUED)

OPERATIONAL PERFORMANCE (continued)

Activation:
- Manual - push button (recommended)
- Automatic - by immersion in water (as a backup, if set ON)
- H2O graphic indicates Wet Contacts are bridged (unit must be dried prior to transport or storage).
- Cannot be manually activated deeper than 4 feet (1.2 meters), if the Water Activation feature is set OFF.
- Cannot be activated at elevations higher than 14,000 feet (4,267 meters)

Shutoff:
- Automatically shuts off if no dive is made within 120 minutes after initial activation. Reactivation required.
- Automatically shuts off 24 hours after last dive (will reactivate if the H2O graphic is displayed).
- Cannot be shut off manually.

Setting FO2:
- Automatically set for 'Air' upon activation
- Remains set for Air unless an FO2 numerical value is set
- Nitrox set points from 21 to 50 %
- If set for 21%, remains set for 21% until changed
- If set for >21%, it reverts to 50% 10 minutes after the dive, if the FO2 Default is ON. If the FO2 Default is OFF, the value will remain at the value set.

Operating Temperature:
- The ATMOS 2 will operate in almost any temperature diving environment in the world, between 32 °F and 140 °F (0 and 60 °C). At extremely low temperatures, the LCD may become sluggish, but this will not affect it's accuracy. If stored or transported in extremely low temperature areas (below freezing), you should warm the module and its battery with body heat before diving.

ACCESSORIES (optional items available from your Authorized AERIS Dealer)
- Lens Guard (computer module) - covers the lens face, prevents scratches
- PC download package (hardware and software)
- Battery Kit - includes 1 battery, 1 battery hatch o-ring, silicone grease

SERVICE RECORD

Serial & Rev Number _____

Date of purchase _____

Purchased from _____

Below to be filled in by an Authorized AERIS Dealer:

Date	Service Performed	Dealer / Technician

AERIS
2002 Davis Street
San Leandro, CA 94577
Tel: 510/346-0010
Fax: 510/346-0015
Web site: http://www.diveaeris.com
E-mail: info2@diveaeris.com

Doc. No. 12-7129-r03 (5/30/06)