



**XR1 Nx**

**DIVE COMPUTER**

**OPERATING MANUAL**

## LIMITED TWO-YEAR WARRANTY

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

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XR1 Nx Operating Manual, Doc. No. 12-7215

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## TRADEMARK NOTICE

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## 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 Variable 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 XR1 Nx 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 XR1 Nx dive computer model is based upon the latest research and experiments in decompression theory. **Still, using the XR1 Nx, 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.

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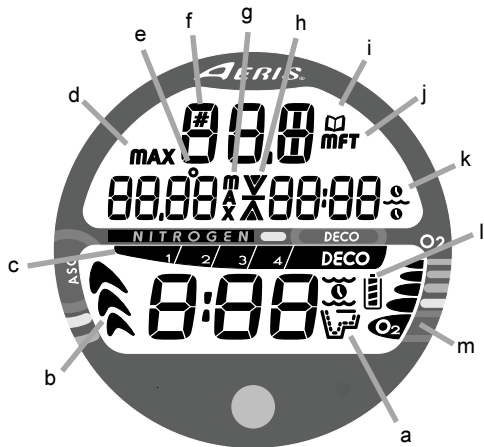
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**Pay special attention to items marked  
with this Warning symbol.**



Components:

- a. Icon - Operating Mode
- b. Variable Ascent Rate Indicator
- c. Nitrogen Bar Graph
- d. Icon - Maximum Depth
- e. Icon - Temperature
- f. Icon - Dive No.
- g. Icon - Maximum PO2
- h. Icon - Descend Arrow
- Icon - Deco Ceiling Stop Bar
- Icon - Ascend Arrow
- i. Icon - Log Mode
- j. Icon - Depth units
- k. Icon - Time
- l. Battery Indicator
- m. O2 Bar Graph

**LCD DISPLAY**



**WARNING:** Prior to diving with the XR1 Nx, you must also read and understand the AERIS Dive Computer Safety and Reference Manual, Doc. No. 12-7203, which provides Important Warnings and Safety Recommendations as well as general product information.

## FEATURES and DISPLAYS

## INTRODUCTION

Welcome to AERIS and thank you for choosing the XR1 Nx !

It is extremely important that you read this Operating Manual in sequence and understand it completely before attempting to use the XR1 Nx.

It is equally important that you read the AERIS Dive Computer Safety and Reference Manual (Doc. No. 12-7203) provided with your XR1 Nx. It contains information that you must become familiar with prior to diving with your XR1 Nx.

Remember that 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.

## CONTROL BUTTON

The Control Button allows you to select display options and access specific information when you want to see it. It is also used to enter settings.



**Be a - RESPONSIBLE DIVER at all times.**



## BAR GRAPHS

### Nitrogen Bar Graph (NIBG)

The Nitrogen Bar Graph (Fig. 1a) 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 No Decompression (normal) zone, a Caution zone (also No Decompression), and a 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.



**NOTE: Displays associated with oxygen and the O<sub>2</sub> Bar Graph will only appear if FO<sub>2</sub> has been set at a value other than 'Air' (e.g., a numerical value).**

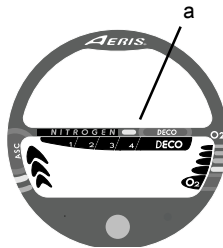


Fig. 1 - NIBG

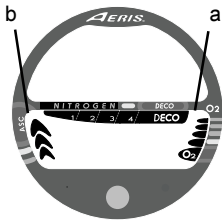


Fig. 2 - O2BG and VARI

### Oxygen Accumulation Bar Graph (O2BG)

The O2 Bar Graph (Fig. 2a) represents oxygen loading, showing the maximum of either per dive accumulated oxygen, or 24 hour period accumulated oxygen.

As your oxygen exposure (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 for that dive and 24 hour period.

### Variable Ascent Rate Indicator (VARI)

The Variable Ascent Rate Indicator (Fig. 2b) provides a visual representation of ascent speed (i.e., an ascent speedometer).

The segments of the Variable Ascent Rate Indicator represent two sets of speeds which change at a reference Depth of 60 FT (18 M). Refer to the chart for segment values.



**WARNING:** At depths greater than 60 FT (18 M), ascent rates should not exceed 60 feet per minute (18 meters per minute). At depths of 60 FT (18 M) and shallower, ascent rates should not exceed 30 feet per minute (9 meters per minute).

<b>Deeper than 60 FT (18 M)</b>		
Segments	Ascent Rate =	
<u>Displayed</u>	<u>FPM</u>	<u>MPM</u>
0	0-20	0 - 6
1	21-50	6.5-15
2	51-60	15.5-18
3	>60	>18

<b>60 FT (18 M) &amp; Shallower</b>		
Segments	Ascent Rate =	
<u>Displayed</u>	<u>FPM</u>	<u>MPM</u>
0	0-10	0 - 3
1	11-25	3.5-7.5
2	26-30	8-9
3	>30	>9

**VARI**

## ALPHA / NUMERIC 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 FT (99.9 M) in 1 FT (0.1 M) increments.

By accessing alternate Main Dive Displays, the **Maximum Depth** reached during that dive will be displayed in the center/left portion of the display (Fig. 4a).

During a Decompression Dive, the required **Ceiling Stop Depth** is displayed in the center of the screen. Maximum Depth can then be viewed by pressing the button.

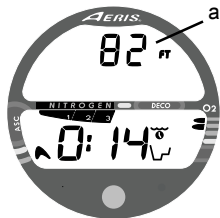


Fig. 3 - CURRENT DEPTH

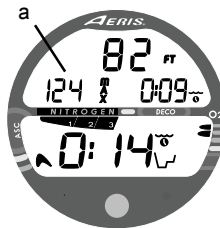


Fig. 4 - MAX DEPTH

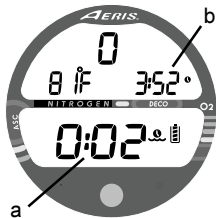


Fig. 5 - TIME

### Time Displays

**Time displays** are shown in hour:minute format (i.e., 1:16 represents 1 hour and 16 minutes, not 116 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).

The **Main Time** display is located in the lower portion of the display (Fig. 5a) and a **second time display** (Fig. 5b) is located in the center/right. Both displays are identified by a clock icon.

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

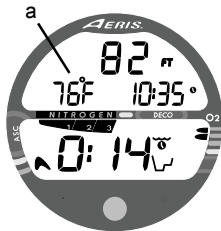


Fig. 6 - TEMPERATURE

### Temperature Display

**Ambient Temperature** is displayed in the center/left portion of the screen (Fig. 6a) while in the Surface Mode and Log Mode, and can be viewed as part of an Alternate Display when the button is pressed while in a dive mode.



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

## POWER SUPPLY

The XR1 Nx utilizes one (1) type CR 2450 Lithium 3 volt cell that should provide 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 will be displayed during Surface Mode (Fig. 7a). The Indicator will not be displayed during Dive Mode(s).

## Low Battery Condition

Voltage level is checked upon activation and every (1) minute during operation on the surface.

- When 75 % of the Rated Power has been consumed, the **lower bar** of the Battery Indicator (only segment) will be displayed, and the outline of the Indicator will flash once per second (Fig. 8) as a warning that the Battery is to be replaced prior to conducting any further dives.

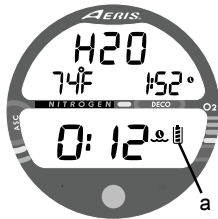


Fig. 7 - BATTERY ICON

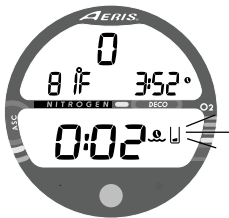


Fig. 8 - LOW BATTERY

- Upon decreasing to a voltage level that will no longer sustain proper operation, the Indicator will flash 5 times followed by shutdown of the unit.
- If a Low Battery Condition exists when the unit is activated (by pressing the button), the graphic bAT and the Battery Indicator will appear flashing for 5 seconds 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 Battery Indicator will appear flashing as a warning upon descent to 5 FT (1.5 M). No other information will be displayed.
- If the unit did not display a Low Battery Condition '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 Battery Indicator will then appear after the dive upon entry into Surface Mode.



## FO2 MODE

After Activation, the XR1 Nx 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 (a numerical value between 21 and 50 %).

When set for an **FO2 value of AIR** (Fig. 9), the XR1 Nx 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 O<sub>2</sub> Bar Graph will not appear on the display for that dive, or subsequent dives, unless FO2 is set for a numerical value (21 to 50).

Once a dive is made with the unit set as a nitrox computer (FO2 set for a numerical value), it 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.

**Setting FO2 is described on Page 21.**

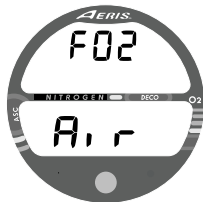


Fig. 9 - FO2 Set for AIR



Fig. 10 - FO2 Set for 21%

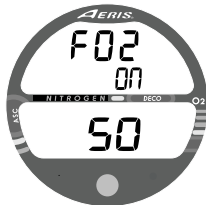


Fig. 11 - FO2 Default ON

## FO2 50% DEFAULT

**If the FO2 Default is set to ON** (Fig. 11) 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. 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.

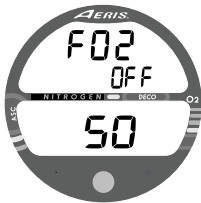


Fig. 12 - FO2 Default OFF

**If the Default is set to OFF** (Fig. 12), the FO2 value for repetitive dives remains the same as previously set until the Set Point is manually changed.





**WARNING:** Prior to diving with the XR1 Nx, you must also read and understand the AERIS Dive Computer Safety and Reference Manual, Doc. No. 12-7203, which provides Important Warnings and Safety Recommendations as well as general product information.

## ACTIVATION and SETUP



Fig. 13 - DIAGNOSTIC MODE



Fig. 14 - SERIAL NUMBER

## ACTIVATION



**WARNING:** If the unit is activated at elevations higher than 14,000 feet (4,270 meters), it will perform a diagnostic check and immediately shutdown.

To Activate the XR1 Nx, press and release the Button.

- Upon manual activation, the unit will enter Diagnostic Mode (Fig. 13), displaying all segments of the LCD as 8's, followed by dashes (- -), then a countdown from 9 to 0. Diagnostic Mode checks the display and Battery voltage to ensure that everything is within tolerance and functioning properly.
- When the button is held depressed and the Diagnostic countdown reaches 00, 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. 14). 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 at that higher Altitude.

### **Wet Contact Activation (only if Wet Activation is set ON)**

The XR1 Nx will also automatically activate by Wet Contact. This is accomplished by bridging the gap between contacts located on the Button's stem and back of the case.

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 reactivate and display the H2O graphic.

### **SURFACE SEQUENCE**

While on the surface, the unit will automatically scroll through a Sequence of displays including -

- Surface Mode
- Fly Mode
- DeSat Mode
- Plan Mode

As the Surface Sequence is scrolling, you can use the button to access Log Mode and Set Mode.

### **SURFACE MODE**

Surface Mode, identified by the Surface Time icon (Fig. 15a), follows Diagnostic Mode after Activation. Information includes Dive Number (0 if no dive made yet), Temperature (and icon), Time of Day (with icon), the Battery Indicator, and Surface Time (with flashing colon).

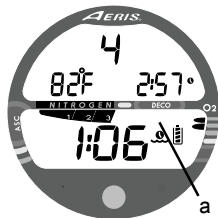


Fig. 15 - SURFACE MODE  
(module is dry)



Fig. 16 - SURFACE MODE  
(module is wet)

If the wet contacts are bridged, the graphic H<sub>2</sub>O will appear in place of the dive number 0 (Fig. 16). After the unit is rinsed and dried, 0 will replace H<sub>2</sub>O.

While the Surface Sequence is scrolling -

- press/release the button (< 2 seconds) to access Log Mode.
- depress the button for 2 seconds to access Set Mode.

### SET MODE

After gaining access to Set Mode, settings can be made in sequence one after the other, or you can access a specific item that you want to set, bypassing others.

### Set Mode Access/Timing

To access Set Mode while the Surface Sequence is scrolling, press the button for 2 seconds, then release it.

- Upon entry into Set Mode, the Set FO<sub>2</sub> screen will be displayed with the Set Point flashing (Fig. 17).
- If the button is not pressed during a 2 minute period while in the Set Mode, the unit will revert to Surface Mode and resume the Surface Sequence scroll.

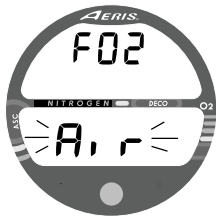


Fig. 17 - SET MODE ENTRY

## **TO SET - FO2**

Each time the unit is activated, FO2 will be automatically set for a default value of AIR which can then be changed to values between 21 and 50% in increments of 1%.

- While the Surface Sequence is scrolling, depress the button for 2 seconds.
- Release the button when the FO2 screen appears with the Set Point flashing (Fig. 18).
- Press/release the button repeatedly to increase the FO2 value from 21 to 50% in increments of 1%, then display AIR again.
- For each FO2 value that appears, the display indicates the Maximum Depth that can be achieved for a PO2 of 1.60 ATA (Fig. 19a), or the PO2 Alarm Set Point. If FO2 is set for AIR, no Depth value will be displayed.
- Depress the button for 2 seconds to accept the FO2 Set Point displayed and advance to the Set Wet Activation screen.

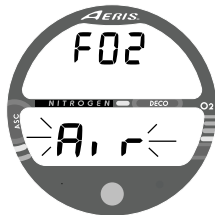


Fig. 18 - FO2 set for AIR

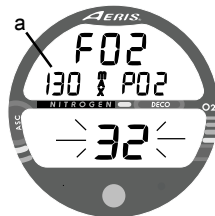


Fig. 19 - FO2 set for 32%  
(130 feet allowed)

## **TO SET - WET ACTIVATION**

Factory set for ON, Wet Activation can also be set OFF (disabled) to prevent inadvertent activation during travel or storage.

When set ON, the XR1 Nx will automatically Activate and enter Dive Mode upon immersion in water.

- After having set and accepted the FO2 setting, the Set Wet Activation screen appears with the Set Point flashing (Fig. 20).

-- or --

- While the Surface Sequence is scrolling, depress the button for 4 seconds to bypass Set FO2.
- Release the button when the Set Wet Activation screen appears with the Set Point flashing.
- Press/release the button (less than 2 seconds) to toggle between ON and OFF.
- Depress the button for 2 seconds to accept the Set Point and advance to Set Units Of Measure.



Fig. 20 - SET WET  
ACTIVATION

## **TO SET - UNITS OF MEASURE**

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

- After having set and accepted Wet Activation, the Set Units screen appears with the Set Point flashing (Fig. 21).

-- or --

- While the Surface Sequence is scrolling, depress the button for 6 seconds to bypass Set FO<sub>2</sub> and Set Wet Activation.
- Release the button when the Set Units screen appears with the Set Point flashing.
- Press/release the button (less than 2 seconds) to toggle between Imperial (FT and F) and Metric (M and C) units.
- Depress the button for 2 seconds to accept the Units Set Point and advance to Set Hour Format.

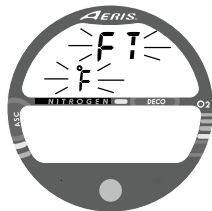


Fig. 21 - SET UNITS OF MEASURE

## **TO SET - HOUR FORMAT**

Factory set for 12 Hour (12: AM to 11: PM), the Hour Format can also be set for 24 Hour (0: to 23: hours).

- After having set and accepted Units, the Set Hour Format screen appears with the Set Point flashing (Fig. 22).

-- or --

- While the Surface Sequence is scrolling, depress the button for 8 seconds to bypass Set FO2, Wet Activation, and Units.
- Release the button when the Set Hour Format screen appears with the Set Point flashing.
- Press/release the button (less than 2 seconds) to toggle between 12 and 24.
- Depress the button for 2 seconds to accept the Set Point and advance to Set Time.



Fig. 22 - SET HOUR  
FORMAT



## **TO SET - TIME**

Set for factory local time, the Time can be set to values between 12:00 Am and 11:59 Pm (12 Hour Format) or 0:00 and 23:59 (24 Hour Format).

- After having set and accepted Hour Format, the Set Time screen appears with the Hour Set Point flashing (Fig. 23).

-- or --

- While the Surface Sequence is scrolling, press the button for 10 seconds to bypass Set FO2, Wet Activation, Units, and Hour Format. Release the button when the Set Time screen appears with the Hour Set Point flashing.
- Press/release the button repeatedly (less than 2 seconds each time) to advance the Hour Set Point in increments of 1 Hour per press of the button.
- Depress the button for 2 seconds to accept the Hour Set Point, the Minutes Set Point flashes.
- Press/release the button repeatedly (less than 2 seconds each time) to advance the Minute Set Point in increments of 1 Minute per press of the button.
- Depress the button for 2 seconds to accept the Minute Set Point and advance to Set PO2 Alarm.



Fig. 23 - SET TIME

## **TO SET - PO2 ALARM**

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

- After having set and accepted the Time, the Set PO2 Alarm screen appears with the Set Point flashing (Fig. 24).

-- or --

- While the Surface Sequence is scrolling, press the button for 14 seconds to bypass Set FO2, Wet Activation, Units, Hour Format, and Time.
- Release the button when the Set PO2 Alarm screen appears with the PO2 Set Point flashing.
- Press/release the button repeatedly (less than 2 seconds each time) to advance the PO2 Alarm setting in increments of .10 (ATA) per press of the button.
- Depress the button for 2 seconds to accept the PO2 Alarm Set Point and advance to Set FO2 Default.

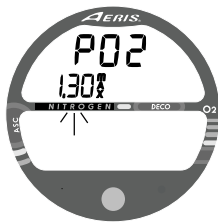


Fig. 24 - SET PO2 ALARM

## **TO SET - FO2 50% DEFAULT**

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 16.

- After having set and accepted the PO2 Alarm Set Point, the Set FO2 50% Default screen appears with the Set Point flashing (Fig. 25).

-- or --

- While the Surface Sequence is scrolling, depress the button for 16 seconds.
- Release the button when the Set FO2 50 screen appears with the Set Point flashing.
- Press/release the button (less than 2 seconds) to toggle between ON and OFF.
- Depress the button for 2 seconds to accept the Set Point and advance to the Surface Mode screen and Surface Sequence.

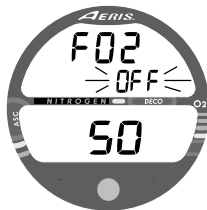


Fig. 25 - SET FO2 DEFAULT

## SUMMARY OF PRE DIVE SETUP

ACTIVATION >> DIAGNOSTIC MODE >> SURFACE MODE

### SURFACE SEQUENCE

SURFACE MODE >> FLY MODE >> DESAT MODE >> PLAN MODE

SURFACE SEQUENCE >> LOG MODE

SURFACE SEQUENCE >> SET MODE

### SET MODE SEQUENCE

FO2 >> WET ACTIVATION >> UNITS >> HOUR FORMAT >> TIME >> PO2 ALARM >>  
FO2 50% DEFAULT



**NOTE: The XR1 Nx will enter Dive Mode upon descent to 5 FT (1.5 M) if first activated by push button or if Wet Activation was previously set ON.**



**WARNING:** Prior to diving with the XR1 Nx, you must also read and understand the AERIS Dive Computer Safety and Reference Manual, Doc. No. 12-7203, which provides Important Warnings and Safety Recommendations as well as general product information.

## PLAN and DIVE MODES

## PRE DIVE PLANNING SEQUENCE™

The Pre Dive Planning Sequence (PDPS), which appears after Surface Mode prior to the first dive of a new activation period, provides a sequence of theoretical dive times available for depths ranging from 30 FT (9 M) to 190 FT (57 M) in 10 FT (3 M) increments.

<u>Depth</u> <u>FT (M)</u>	<u>NDL</u> <u>hours:mins</u>
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 (51)	:07 (:06)
180 (54)	:06 (:06)
190 (57)	:05 (:05)

NDLs at Sea Level  
for an Air Dive  
(no dive made yet)

No decompression times (limits), or NDLs, 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 60 feet (18 meters) per minute.

The PDPS 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 PDPS 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. It appears after the SAT screen in the scrolling Surface Sequence (SURF > FLY > SAT > PDPS).



**WARNING:** The available dive times provided are only predictions, depending on cylinder size and air consumption rate, you may have less time available than indicated because of those and other factors.

- With each Depth displayed by the PDPS, 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).
- The Maximum Depth allowed for a PO<sub>2</sub> level of 1.60 (ATA) for the FO<sub>2</sub> setting will also be displayed.
- Depths greater than the Maximum Depth that can be achieved with a PO<sub>2</sub> of 1.60 ATA will not be displayed.
- If the Nitrogen Bar Graph is displayed (Fig. 26), that next dive is calculated to be controlled by nitrogen loading.
- If the O<sub>2</sub>BG is displayed (Fig. 27), it is calculated to be controlled by oxygen loading.



**NOTE: The XR1 Nx will store O<sub>2</sub> 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 O<sub>2</sub>BG will be displayed flashing.**

**Depth/Time values will not appear until the O<sub>2</sub>BG recedes into the normal zone (i.e., your daily O<sub>2</sub> dosage decreases an amount equal to the amount accumulated during the latest dive completed).**



Fig. 26 - NITROGEN IN CONTROL

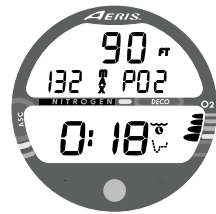


Fig. 27 - OXYGEN IN CONTROL

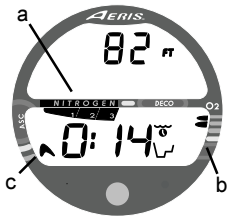


Fig. 28 - BAR GRAPHS

### **NIBG (NITROGEN BAR GRAPH) (Fig. 28a)**

As your Depth and Elapsed Dive Time increase, the NIBG (Nitrogen Bar Graph) will add segments to represent the absorption of nitrogen.

While ascending to shallower depths, the number of segments displayed will begin to recede, offering a graphic representation of your multilevel diving capability.

### **O2BG (OXYGEN ACCUMULATION BAR GRAPH) (Fig. 28b)**

If FO2 was set for a numerical value (Nitrox), the Oxygen Accumulation Bar Graph (O2BG) will add segments to represent oxygen accumulation for that dive, or 24 hour period, whichever amount is greater.

### **VARI (VARIABLE ASCENT RATE INDICATOR) (Fig. 28c)**

The Variable Ascent Rate Indicator (VARI) shows how fast you are ascending.

When you exceed the maximum recommended ascent rate for the depth you are at (see page 10), all segments of the VARI will flash (Fig. 29). The flashing will stop when your Ascent Rate is slowed below the alarm value.

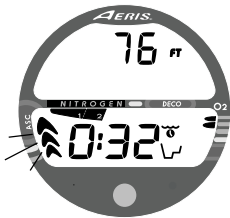


Fig. 29 - ASCENT TOO FAST



## 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 allow the diver to select which information is on display at any given time during the dive. The screens can be changed from one display to another as often as desired by pressing and releasing the button momentarily (< 2 seconds).

During conditions in which cautionary type information is displayed (e.g., Decompression, High PO<sub>2</sub>, High O<sub>2</sub>, etc.), there is a Main Display of important information relevant to the specific condition. Other screens of information can be accessed, which automatically revert to the Main Display after 5 seconds.

## NO DECOMPRESSION DIVE MODE

The XR1 Nx will enter the No Decompression Dive Mode when you descend to 5 FT (1.5 M).

### No Deco Dive Main Display #1 (Fig. 30)

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

- Press/release the button 1 time (< 2 seconds) to change the screen to No Deco Dive Main Display #2.

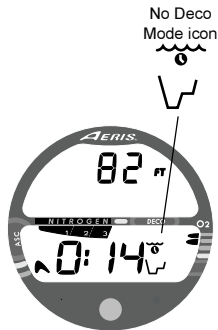


Fig. 30 - NO DECO MAIN #1

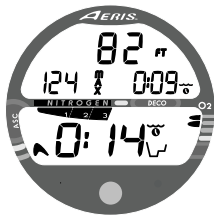


Fig. 31 - NO DECO MAIN #2

- Press/release the button 2 times (< 2 seconds each time) to change to No Deco Dive Main Display #3.
- Press/release the button 3 times (< 2 seconds each time) to change to No Deco Dive Main Display #4 (if a Nitrox dive).

### No Deco Dive Main Display #2 (Fig. 31)

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

- Press/release the button 1 time (< 2 seconds) to change the screen to Main Display #3.
- Press/release the button 2 times (< 2 seconds each time) to change to Main Display #4 (if a Nitrox dive), or #1.
- Press/release the button 3 times (< 2 seconds each time) to change to Main Display #1.

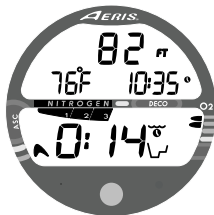


Fig. 32 - NO DECO MAIN #3

### No Deco Dive Main Display #3 (Fig. 32)

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

- Press/release the button 1 time (< 2 seconds) to change the screen to Main Display #4 (if a Nitrox dive), or #1.
- Press/release the button 2 times (< 2 seconds each time) to change to Main Display #1.

### No Deco Dive Main Display #4 (Fig. 33)

Display #4 will not appear when FO2 is set for AIR.

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

- Press/release the button 1 time (< 2 seconds) to change the screen to Main Display #1.

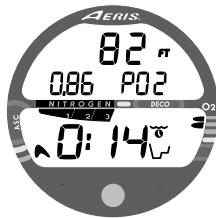


Fig. 33 - NO DECO MAIN #4

### No Deco Dive SAFETY STOP (Fig. 34)

Upon ascending to 20 FT (6 M) on any No Decompression dive in which Depth exceeded 30 FT (9 M), a Safety Stop screen will appear displaying a Stop at 15 FT (4.5 M) with a 3 minute Countdown Timer that counts down from 3:00 to :00 (min:sec).

The Safety Stop will be displayed until the countdown times out, or another descent is made below 30 FT (10 M), or the diver surfaces. There is no Penalty for surfacing prior to completing the Safety Stop.

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



Fig. 34 - NO DECO SAFETY STOP

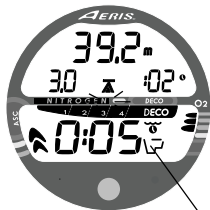


Fig. 35 - ENTRY into DECO

Deco  
Mode icon



## DECOMPRESSION DIVE MODE

The XR1 Nx 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.

Upon entering Decompression Mode, the Mode icon will change from No Deco to Deco (Fig. 35).

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

## Total Ascent Time

Total Ascent Time (Fig. 36a) includes Stop Times required at all required decompression ceilings and vertical Ascent Time calculated at 60 FPM (18 MPM) for depths deeper than 60 FT (18 M), and 30 FPM (9 MPM) per minute for depths of 60 FT (18 M) and shallower.

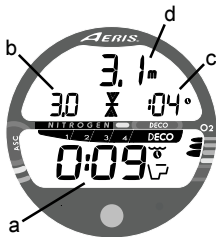


Fig. 36 - DECO STOP

## Managing Decompression Stops

To fulfill your decompression obligation, you should make a safe controlled ascent to a depth slightly deeper than, or equal to, the Required Ceiling Stop Depth indicated (Fig. 36b) and decompress for the Stop Time indicated (Fig. 36c).

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. 36d page 36) than the Required Stop Depth indicated until the next shallower Stop Depth appears. Then, you can slowly ascend to, but not shallower than that indicated ceiling Stop Depth.

- While in Decompression Mode, Alternate Displays can be accessed that will automatically revert to the Main (Default) Display after 5 seconds.

### **Deco Dive Main (Default) Display (Fig. 37)**

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

- Press/release the button 1 time (< 2 seconds) to view Deco Alternate Display 1.
- Press/release the button 2 times (< 2 seconds each time) to view Deco Alternate Display 2.
- Press/release the button 3 times (< 2 seconds each time) to view Deco Alternate Display 3 (if a Nitrox dive).

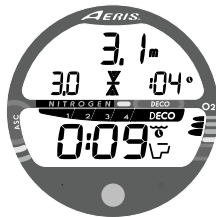


Fig. 37 - DECO STOP MAIN



Fig. 38 - DECO STOP ALT 1

### **Deco Dive Alternate Display 1 (Fig. 38)**

Information includes - Current Depth, Max Depth (and icon), Elapsed Dive Time (and icon), Total Ascent Time (and icon), both Arrows and the Deco Bar, and the applicable bar graphs.

- Press/release the button 1 time (< 2 seconds) to view Alternate Display 2.
- Press/release the button 2 times (< 2 seconds each time) to view Alternate Display 3 (if a Nitrox dive).



Fig. 39 - DECO STOP ALT 2

### **Deco Dive Alternate Display 2 (Fig. 39)**

Information includes - Current Depth, Temperature, Time of Day (and icon), Total Ascent Time, both Arrows and the Deco Bar, and the applicable bar graphs.

- Press/release the button 1 time (< 2 seconds) to view Alternate Display 3 (if a Nitrox dive).



Fig. 40 - DECO STOP ALT 3

### **Deco Dive Alternate Display 3 (Fig. 40)**

Alternate Display 3 will not appear when FO2 is set for AIR. Information includes - Current Depth, the current value of PO2 and PO2 graphic, Total Ascent Time, Mode icon, both Arrows and the Deco Bar, and applicable bar graphs.

## VIOLATION MODES

While in Violation Modes, the Alternate Displays previously described for Deco can be accessed.

- Alternate Displays will automatically revert to the Main (Default) Display after 5 seconds unless the button is pressed to view another Alternate Display.

### Conditional Violation Mode

If you ascend shallower (Fig. 41a) than the Required Decompression Ceiling Stop Depth displayed (Fig. 41b), the Down Arrow, Deco Bar, and Total Ascent Time will flash until you descend below the Required Stop Depth. Current Depth and applicable bar graphs will be displayed.

If you descend below the required decompression ceiling before 5 minutes have elapsed, the XR1 Nx 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  $1\frac{1}{2}$  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 Deco Stop Depths and Time will decrease toward zero, then the XR1 Nx will revert to the No Deco Dive Mode.

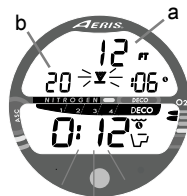


Fig. 41 - CONDITIONAL VIOLATION

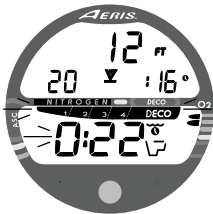


Fig. 42 - DELAYED VIOLATION #1

### Delayed Violation Mode #1 (Fig. 42)

If you remain above a Required Ceiling Stop Depth for 'more than 5 minutes', the full NIBG and Total Ascent Time will flash until you descend below the Required Stop Depth. This is a continuation of a Conditional Violation.

### Delayed Violation Mode #2 (Fig. 43)

The XR1 Nx cannot calculate decompression times for Stop Depths much greater than 60 FT (18 M) and offers no indication of how much time spent underwater would result in the need for a greater Stop Depth.

If your Decompression obligation requires a Ceiling Stop Depth 'between' 60 FT (18 M) and 70 FT (21 M), the full NIBG will flash. Total Ascent Time will still be displayed.

You must ascend to just deeper than, and stay as close as possible to, 60 FT (18 M) without causing the Total Ascent Time display to flash.

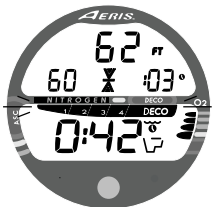


Fig. 43 - DELAYED VIOLATION #2

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. 44)

If you descend deeper than 330 FT (99.9 M), the loaded NIBG segments will flash, and the Current Depth and Max Depth displays will only indicate 3 dashes (---).

Upon ascending above 330 FT (99.9 M), 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 display 3 dashes as the Max Depth achieved.

### Immediate Violation and Violation Gauge Mode

During a Dive, if a ceiling much greater than 60 FT (18 M) is required, an Immediate Violation Mode will be entered. This situation would be preceded by entering Delayed Violation Mode #2.

The XR1 Nx would then operate with limited functions in Violation Gauge Mode during the remainder of that dive and for 24 hours after surfacing. Violation Gauge Mode turns the XR1 Nx into a digital instrument without any decompression or oxygen monitoring functions. Only Current Depth, Max Depth, Elapsed Dive Time, and the Variable Ascent Rate Indicator will be displayed (Fig. 45). The NIBG and O2BG will both flash as a warning of this condition.



Fig. 44 - DELAYED VIOLATION #3

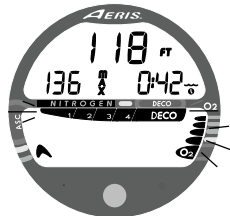


Fig. 45 - VIOLATION GAUGE MODE

The XR1 Nx 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, Violation Gauge Mode displays the Dive Number, Temperature, Time of Day, Surface Interval, and NIBG and O2BG flashing (Fig. 46). It does not provide the FO2, PDPS, 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 only provided to inform you of the time remaining before normal XR1 Nx operation can resume with full features and functions.

**△ NOTE: This condition is 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.**

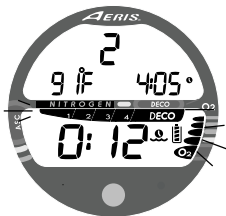


Fig. 46 - VIOLATION  
GAUGE MODE  
(on Surface)

## HIGH PO2

When partial pressure of oxygen (PO<sub>2</sub>) becomes equal to, or greater than, 1.40 ATA, or 0.20 ATA less than the PO<sub>2</sub> Alarm Set Point (a user setting); the current PO<sub>2</sub> value, PO<sub>2</sub> symbol, O<sub>2</sub> segment of the O<sub>2</sub> Bar Graph, and UP Arrow will appear on the Main Display as a warning until PO<sub>2</sub> decreases. Current Depth and Dive Time Remaining will also be displayed (Fig. 47).

If PO<sub>2</sub> continues to increase, the value displayed will increase toward a maximum display value of 5.50 ATA in increments of .01 ATA. When it reaches a value of 1.60 ATA, or the PO<sub>2</sub> Alarm Set Point (a user setting); the current PO<sub>2</sub> value, PO<sub>2</sub> symbol, O<sub>2</sub> segment of the O<sub>2</sub> Bar Graph, and UP Arrow will flash as a warning until PO<sub>2</sub> decreases (Fig. 48).

- Press/release the button momentarily (< 2 seconds) to view the Alternate Displays.
- The unit will revert to the Main (Default) Display after 5 seconds.



Fig. 47 - HIGH PO<sub>2</sub> WARNING

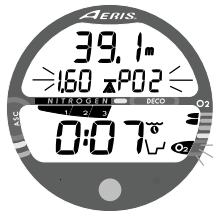


Fig. 48 - HIGH PO<sub>2</sub> ALARM

## HIGH OXYGEN ACCUMULATION

The O2 Bar Graph displays either oxygen accumulated during that nitrox dive, or during the repetitive nitrox dives you conduct during that 24 hour period, whichever of the two is greater at that time.

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.

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 O2 (Danger) Zone (Fig. 49). The UP Arrow and the full O2 Bar Graph will flash as a warning until the level of oxygen decreases below the limit.



Fig. 49 - HIGH O2

- Press/release the button momentarily (< 2 seconds) to view the Alternate Displays.
- The unit will revert to the Main Display after 5 seconds.



**WARNING:** Prior to diving with the XR1 Nx, you must also read and understand the AERIS Dive Computer Safety and Reference Manual, Doc. No. 12-7203, which provides Important Warnings and Safety Recommendations as well as general product information.

## POST DIVE MODES

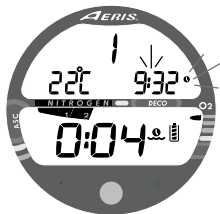


Fig. 50 - TRANSITION PERIOD

## POST DIVE SURFACE MODE

When you ascend to 2 FT (0.6 M) or shallower, the XR1 Nx will enter Surface Mode and begin counting Surface Interval.

## TRANSITION PERIOD

The first 10 minutes is, in affect, a Transition Period during which time the following information is displayed (Fig. 50):

- Number of that dive (during that activation period)
- Temperature (ambient)
- Time of Day and icon
- Battery icon
- Surface Interval time (colon flashing) and icon (flashing)
- Nitrogen Bar Graph
- O2 Bar Graph (if set for Nitrox)

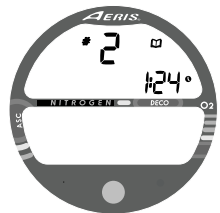


Fig. 51 - LOG MODE  
(during Transition Period)

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

To view the Log for that dive (Fig. 51), press/release the button (less than 2 seconds).

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

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

### **AFTER THE TRANSITION PERIOD (THE FIRST 2 HOURS)**

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.

For the remainder of the first 2 hours after surfacing, information will continue to be displayed as the Surface Sequence, scrolling through the Surface Mode > Fly > Sat > Plan screens. You will also have full access to Log and Set modes.

### **Time to Fly/Desaturate**

The Time to Fly and Desat Timers begin counting down 10 minutes after surfacing from a dive (after the Transition Period).

The FLY countdown (Fig. 52) always begins at 23:50 (hr:min) and the Desat countdown (Fig. 53) at 2:16 (maximum).

If a Violation occurred during the dive a single dash ( - ) will appear instead of the letters FLY. DeSat time will not be displayed.



Fig. 52 - TIME TO FLY  
(module wet)



Fig. 53 - DESAT TIME

The Time to Fly counter is provided to assist you with deciding when enough surface time has elapsed to fly (or travel to higher elevations).

- 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.

### Pre Dive Planning Sequence (PDPS)

After a dive, the PDPS provides 'adjusted' No Decompression Limits (Fig. 54) based on residual nitrogen calculated to be remaining from that dive and previous dives in the same series.

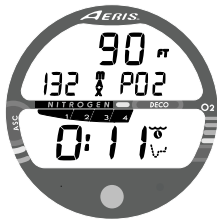


Fig. 54 - ADJUSTED NDLs



## Log Mode

The XR1 Nx will store up to 12 dives in its Log for viewing. Once the Log is full (12 dives), each subsequent dive will then overwrite the oldest dive stored in the Log. It is therefore suggested that you transfer the Log's data to your log book at the end of each day of diving.

Log data will not be lost when the battery is removed/replaced, however, factory service and calibration will delete the data.

The first dive conducted each time the unit is Activated will be #1, therefore there may be multiple #1 dives in the Log.

Each dive has 3 Log screens - Dive Identifier (Preview), Dive Data, and O<sub>2</sub> Data (if a Nitrox dive). Dives are displayed in a reverse sequence that starts with the dive most recently recorded, back to the oldest one stored. The most recent dive will always be the first shown in the sequence.

### To access Log Mode -

- Press/release the button momentarily (< 2 seconds) while the unit is scrolling through the Surface Sequence.
- The first screen (Dive Preview/Identifier) of the most recent dive conducted will appear displaying (Fig. 55) -
  - Log Mode icon
  - Dive Number (for that activation period)
  - Time of Day, that the dive started (Hour/Minute)

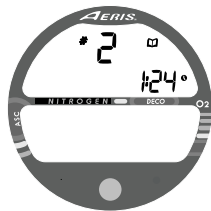


Fig. 55 - LOG PREVIEW



Fig. 56 - LOG DIVE DATA

- While viewing the Preview screen, press/release the button momentarily to view the second screen.

**Dive Data** (the second screen) information includes (Fig. 56) -

- Log Mode icon
- Maximum Depth - reached during the dive (and icon)
- Temperature - minimum during the dive (and icon)
- Surface Interval - prior to that dive (and icon).
- Elapsed Dive Time (and icon)
- VARI - showing the maximum ascent rate maintained for 4 consecutive seconds during the dive.
- NIBG - showing tissue nitrogen loading at the time you surfaced at the end of the dive. The segment that reflects the maximum loading during the dive will appear flashing.
- Press/release the Button to view the third screen.

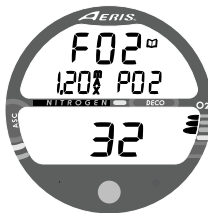


Fig. 57 - LOG O2 DATA

**O2 Data** (the third screen) information includes (Fig. 57) -

- Log Mode icon
- Graphic FO2 (at top) and FO2 Set Point (at bottom)
- Maximum PO2 level reached during the dive with the MAX icon and graphic PO2.
- O2BG - showing oxygen loading at the time you surfaced at the end of the dive.

To access the first screen of the previous dive's Log, press/release the button momentarily (< 2 seconds).

To return to the Surface Sequence at any time while in Log Mode, depress the button for 6 seconds, releasing it when Surface Mode appears.

The unit will automatically revert to the Surface Sequence after 2 minutes if the button is not pressed to view another Log Screen.

### **AFTER THE FIRST 2 HOURS**

Two hours after the last dive, the Surface Sequence will no longer be displayed. The Time to Fly and Desat countdown screens (Fig. 58) 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/release the button to reactivate the Surface Sequence.
- The unit will again revert to the Time to Fly and Desaturation countdowns after 2 hours, if the button is not pressed.
- Surface Interval Times greater than 9:59 (hr:min) will be displayed only as Hours 10-, 11-, 12-, etc. (Fig. 59)



Fig. 58 - FLY/SAT

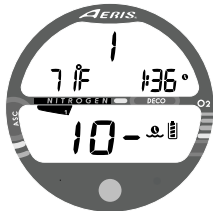


Fig. 59 - SURFACE MODE  
(greater than 9:59 SI)



Fig. 60 - SURFACE MODE  
(unit wet)



Fig. 61 - FLY (unit wet)

## WET CONTACTS

If the graphic H<sub>2</sub>O appears during the Surface Mode (Fig. 60), Fly Mode (Fig. 61), or Desaturation Mode, it is an indication that the wet activation contacts are bridged (still wet) and the unit must be rinsed in fresh water and thoroughly dried.

- The contacts are located in the button stem and back of the case.
- Once the unit is dry, the graphic H<sub>2</sub>O will disappear from the display.
- 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 H<sub>2</sub>O would then appear in place of Dive Number when Surface Mode is displayed during the Surface Sequence.
- If no dive is made after activation, the unit would shut off after 2 hours, then automatically reactivate again if wet, repeating the action until cleaned and dried.

## RESET (CLEAR) FEATURE

The XR1 Nx is configured with a RESET feature that allows data to be cleared, including Nitrogen and Oxygen calculations and Log Mode entries.

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

### RESET PROCEDURE

- While the Surface Sequence is scrolling, press/release the button to access the Log Mode displaying the first screen (Dive Preview/Identifier) of the most recent dive.
- Press/release the button again to access the second screen (Dive Data) of the most recent dive.
- Depress/hold the button while the second Log screen of the most recent dive is being displayed to access the Reset screen. The graphics **CLR** and **id** will appear with the Key Code 0 000, the first 2 digits flashing (Fig. 62). Release the button.
- If necessary to change the first 2 digits, press/release the button repeatedly to advance to the correct number.
- Depress the button for 2 seconds to save the first 2 digit number and advance to the second 2 digits, flashing.
- If necessary to change the second 2 digits, press/release the button repeatedly to advance to the correct number.
- Once the proper Key Code has been entered (**01 01**), depressing the button for 2 seconds accept the Key Code, complete the Reset operation, and turn the unit Off (i.e., Clearing it).
- If an incorrect Key Code number has been entered, the unit will revert to the Surface Sequence when the button is depressed, resuming previous operation(s).

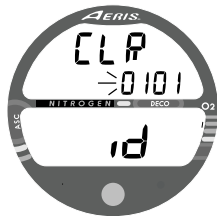


Fig. 62 - RESET (Clear)

## UNEXPECTED LOSS OF DISPLAYED INFORMATION

If your XR1 Nx stops working for any reason, it is important that you have anticipated this possibility and are prepared for it. **This is an important reason for not pushing the No Decompression and Oxygen Accumulation Limits, and a critical reason to avoid entering Decompression.**

If you dive in situations where your trip would be ruined or your Safety would be jeopardized by losing the use of your XR1 Nx, a backup instrument system is highly recommended.



**Be a -  
RESPONSIBLE DIVER  
at all times.**



**WARNING:** Prior to diving with the XR1 Nx, you must also read and understand the AERIS Dive Computer Safety and 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 XR1 Nx 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.

- Soak and rinse the XR1 Nx 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. 63a) and button are free of debris or obstructions.
- To dissolve salt crystals, use lukewarm water or a 50% white vinegar/50% fresh 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.

## INSPECTIONS AND SERVICE

Your XR1 Nx 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.

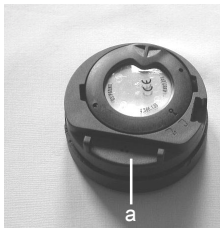


Fig. 63 - BACK OF CASE



## **To Obtain Service**

Take your XR1 Nx to an Authorized AERIS Dealer or send it to AERIS.

### **To return your XR1 Nx to AERIS:**

- Record all dive data in the Log. 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.
- If shipping to AERIS USA, obtain an RA (Return Authorization) number by contacting AERIS at 510/346-0010 or send an e-mail to info2@diveaeris.com.
- Non warranty service must be prepaid. COD is not accepted.
- Additional information is available at the AERIS web site [diveaeris.com](http://diveaeris.com)



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



## MODULE REMOVAL FROM BOOT

If the Module is in a Console, bend the rubber Console Boot back to expose the edge of the Module. If the Boot is flexible enough to permit, you may bend it back far enough to scoop the Module out with your finger. Otherwise, it may be necessary to insert a blunt screwdriver until the tip rests just underneath the Module. DO NOT pry the Module from the Console! Slowly increase the pressure under the Module by releasing the tension on the rubber Boot. The Module will slide up the screwdriver and exit the Console.

If the Module is in a Wrist Boot, it will be necessary to peel the lips of the Boot downward off the Module while applying pressure from underneath, working it out slowly.

## 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.

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).



**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 Hatch Removal

- Locate the Battery Compartment on the back of the Module.
- While applying steady inward pressure on the center of the Battery Hatch, rotate the Hatch Retaining Ring 10 degrees clockwise using a flat blade screwdriver (Fig. 64) or a Battery Hatch Tool.
- Lift the Hatch Ring up and away from the Housing, or turn the Module over to allow the Ring to drop out into your hand.
- Remove the Battery Hatch.



Fig. 64 - RING REMOVAL

## Battery Removal

- Remove the Retaining Bar located across the lower portion of the Battery (Fig. 65a).
- Remove the Hatch O-ring. DO NOT use tools
- Using care not to damage the Battery Contacts (Fig. 65b/c), slide the Battery up and out of the Battery Compartment.

## Inspection

- Closely check all of the sealing surfaces for any signs of damage that might impair proper sealing.
- Inspect the Button, Lens, and Housing to ensure they are not cracked or damaged.

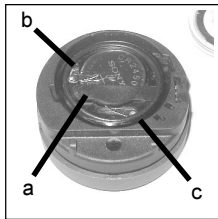


Fig. 65 - HATCH REMOVAL

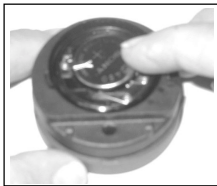


Fig. 66 -INSERTING  
BATTERY

- 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').



**WARNING: If damage or corrosion is found, return your XR1 Nx to an Authorized AERIS Dealer, and DO NOT attempt to use it until it has received factory prescribed service.**

### Battery Installation

- Slide a new 3 volt type CR2450 Lithium Battery, negative (-) side down into the Battery Cavity. Slide it in from the right side and ensure that it slides under the contact clip on the left rim of the cavity (Fig. 66).
- Orient the Retaining Bar across the lower portion of the Battery and carefully push it down into position (Fig. 67).

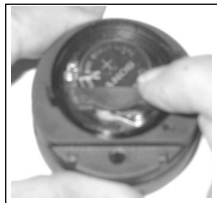


Fig. 67 - INSERTING  
RETAINING BAR

### Battery Hatch and Hatch Retaining Ring Installation

- Replace the Hatch O-ring with a new one which 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.

- Lightly lubricate the new Hatch O-ring with silicone grease and place it on the inner rim of the Battery Hatch (Fig. 68). Ensure that it is evenly seated.
- Slide the Hatch Retaining Ring, top portion first (small opening), onto your thumb.
- Carefully place the 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 Retaining Ring down off your thumb and into position around the Battery Compartment.
- The tabs on the Retaining Ring fit down into the two slots located at the 2 and 8 o'clock positions.
- Using your fingers, turn the Ring counter clockwise 5 degrees until the tabs engage (Fig. 69), then tighten it 5 more degrees by turning it counter clockwise using the Battery Hatch Tool (Fig. 70).
- While tightening the Retaining Ring, exert continuous inward pressure on it until it is secured in the proper position. A small symbol located on the Ring should be aligned with the Locked symbol located on the Housing (Fig. 70a)

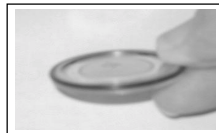


Fig. 68 - O-RING ORIENTATION

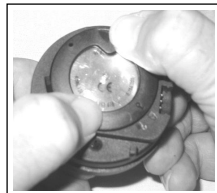


Fig. 69 -ENGAGING the RETAINING RING TABS

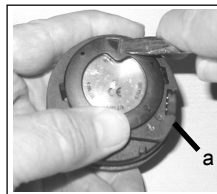


Fig. 70 -TIGHTENING the RETAINING RING

## 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 there are any portions of the display missing or appearing dim, or if a Low Battery condition is indicated, return your XR1 Nx to an Authorized AERIS Dealer for a complete evaluation before attempting to use it.**

## RETURNING THE MODULE TO BOOT

- If the Boot was fitted with a Spacer and it was previously removed, replace the Spacer into the Boot.
- Orient the Module over the opening in the Boot, and dip the bottom edge into it while pressing the top edge with the palm of your hand. Stop pressing when the bottom edge of the Module has just entered the Boot.
- Correct the alignment of the Module as needed so that it is straight.
- Press the Module completely into place with your thumbs, watching the alignment, until it snaps into place.



## ALTITUDE 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 ambient pressure indicate depth readings shallower than the depth they are actually at.

The XR1 Nx automatically compensates for decreased ambient pressures for Altitudes between 2,000 (610 meters) and 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 XR1 Nx 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 XR1 Nx 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

## 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
- Serial Number
- Surface
- Time to Fly Countdown
- Desaturation Countdown
- Pre Dive Planning Sequence (30 to 190 FT / 9 to 57 M)
- Dive Log (Preview, Dive Data, O2 Data)
- Reset
  
- Set FO2 (Air, 21 to 50%)
- Set Wet Activation (On / Off)
- Set Units of Measure (Imperial / Metric)
- Set Hour Format (12 / 24)
- Set Time (Hour, Minute)
- Set PO2 Alarm (1.20 to 1.60 ATA)
- Set FO2 50% Default (On/Off)
  
- No Decompression Dive:
  - Main #1 (Depth, Dive Time Remaining, Bar Graphs)
  - Main #2 (Depth, Dive Time Remaining, Max Depth, Elapsed Dive Time, Bar Graphs)
  - Main #3 (Depth, Dive Time Remaining, Temperature, Time of Day, Bar Graphs)
  - Main #4 -if nitrox dive (Depth, Dive Time Remaining, Current PO2, Bar Graphs)
  - Safety Stop - for dives deeper than 30 FT (9 M) Depth, Stop Depth 15 FT/4.5 M, Stop Time 3:00 minutes, Dive Time Remaining, Bar Graphs)



## SPECIFICATIONS (CONTINUED)

### OPERATIONAL MODES (continued)

- Decompression Dive:
  - Main - Default (Depth, Stop Depth and Time, Total Ascent Time, Bar Graphs)
  - Alternate #1 (Depth, Max Depth, Elapsed Dive Time, Total Ascent Time, Bar Graphs)
  - Alternate #2 (Depth, Temperature, Time of Day, Total Ascent Time, Bar Graphs)
  - Alternate #3 - if nitrox dive (Depth, Current PO<sub>2</sub>, Total Ascent Time, Bar Graphs)
- Violation (Conditional, Delayed, and Immediate/Gauge)
- High PO<sub>2</sub> (1.20 to 1.60 ATA)
- High Oxygen Accumulation (per dive or 24 hr)

### DISPLAY RANGE/RESOLUTION

#### Numeric Displays:

	<u>Range:</u>	<u>Resolution:</u>
• Dive Number	0 - 12	1
• Depth	0 - 330 FT (0 - 99.9 M)	1 FT (0.1 M)
• Maximum Depth	0 - 330 FT (0 - 99.9 M)	1 FT (0.1 M)
• FO <sub>2</sub> Set Point	Air, 21 - 50 %	1 %
• PO <sub>2</sub> Value	0.00 - 5.50 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	1 minute
	( > 9:59 hr:min SI will be displayed as Hours only 10-, 11-, 12-, etc.)	
• Dive Log Surface Interval	0:00 - 25:59 hr:min	1 minute
• Time to Fly	23:50 - 0:00 hr:min*	1 minute
	(* starting 10 min after the dive)	
• Time to Desaturate	23:50 (maximum) - 0:00 hr:min*	1 minute
	(* starting 10 min. after the dive)	
• Temperature	0 to 99°F (-9 to 60°C)	1°

## SPECIFICATIONS (CONTINUED)

### Special Displays:

- Diagnostic Display
- Serial Number Display
- Out of Range (- - -)
- Gauge Mode Countdown Timer

### Occurrence

- After Manual Activation
- After Diagnostics (if the Button is held depressed until screen appears)
- >330 FT (>99.9 M)
- 23:50 to 0:00 hr:min (after violation)

### BAR GRAPHS

#### **Nitrogen Bar Graph**

#### segments

- No Deco Normal zone
- No Deco Caution zone
- Decompression Warning zone

3  
1  
1

#### **Oxygen (O2) Bar Graph:**

#### segments

- Normal zone
- Caution zone
- Danger zone

3  
1  
1

#### **Variable Ascent Rate Indicator: 60 FT (18 M) & Shallower**

	<u>segments</u>	<u>FPM</u>	<u>MPM</u>
	0	0 - 10	0 - 3
• Normal Zone	1	11 - 25	3.5 - 7.5
• Caution Zone	2	26 - 30	8 - 9
• Too Fast Zone (flashing)	3 (all)	> 30	> 9

#### **Deeper than 60 FT (18 M)**

	<u>segments</u>	<u>FPM</u>	<u>MPM</u>
	0	0 - 20	0 - 6
	1	21 - 50	6.5 - 15
	2	51 - 60	15.5 - 18
	3 (all)	> 60	> 18

### OPERATIONAL PERFORMANCE

#### **Function:**

- Depth
- Timers

#### Accuracy:

- ±1% of full scale
- 1 second per day

#### **Dive Counter:**

- Displays Dives #1 to 12, 0 if no dive made yet.
- Resets to Dive #1, upon reactivation after having shut off.

## SPECIFICATIONS (CONTINUED)

### OPERATIONAL PERFORMANCE (continued)

#### **Dive Log Mode:**

- Stores 12 most recent dives in memory for viewing
- After 12 dives, adds 13th dive in memory and deletes the first dive

#### **Altitude:**

- Operational from sea level to 14,000 feet (4,270 meters) elevation
- Samples Ambient Pressure every 30 minutes when not activated, when manually activated, and every 15 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 (4,270 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)<br>300 dive hours (if 3 - 1 hour dives per dive day) |

<b>Battery Status Indicator:</b>	<u>segments displayed</u>	<u>estimated power remaining</u>
	all	26 to 100%
	1	25% or less

#### **Activation:**

- Manual - push button (recommended)
- Automatic - by immersion in water (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 FT (1.2 M), if the Water Activation feature is set OFF.
- Cannot be activated at elevations higher than 14,000 feet (4,270 meters)

## SPECIFICATIONS (CONTINUED)

### OPERATIONAL PERFORMANCE (continued)

#### **Shut Off:**

- Automatically shuts Off if no dive is made within 2 hours after initial activation. Reactivation required.
- Automatically shuts Off 24 hours after last dive (will reactivate if the H2O graphic was 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 for that activation period.

#### **Operating Temperature:**

- The XR1 Nx will operate in waters having **temperatures** 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 - covers lens face, prevents scratches
- Battery Kit - includes 1 battery, 1 battery hatch o-ring, silicone grease

## NOTES

## NOTES

# SERVICE RECORD

Serial No. & Rev. No. \_\_\_\_\_

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](mailto:info2@diveaeris.com)**