

# SaGE

## ***DIVE COMPUTER MANUAL***

# CONTENTS

WARNINGS AND SAFETY RECOMMENDATIONS	3
-------------------------------------	---

NOTICES	4
---------	---

GETTING STARTED	5
-----------------	---

BASICS	6
INITIAL ACTIVATION	6
POWER	6
BATTERY CHARGER	6
CHANGING THE BATTERY	6
QUICK DISCONNECT HOSE	8
DISPLAY ICONS	9
BUTTONS	10
BUTTON FUNCTIONS	11
DIVE FEATURES	12
SAFE MINUTES (DIVE TIME REMAINING)	13
NO DECOMPRESSION	13
O2 (OXYGEN TIME REMAINING)	13
ATR (AIR TIME REMAINING)	14
BAR GRAPHS	14
ASC BAR GRAPH	14
N2 BAR GRAPH	14
ALGORITHM	15
CONSERVATIVE FACTOR	15
DS (DEEP STOP)	15
SS (SAFETY STOP)	15
LOW BATTERY WHILE ON THE SURFACE	15

AIR/NX SURFACE MODE	17
---------------------	----

ON THE SURFACE BEFORE A DIVE	18
SET BRIGHTNESS	18
ALT 1 (LAST DIVE)	19
ALT 2	19
ALT 3	19
MAIN MENU	20
SETUP MENU	20
1. SET GAS	21
2. ALARMS	22
A. AUDIBLE	22
B. ASCENT	23
C. DEPTH	23
D. TURN	24
E. END	24
F. RESERVE TIME	25
G. N2BG	25
3. UTILITIES	26
A. H2O SENSOR	26
B. UNITS	27
C. SAMPLE RATE	27
D. DEEP STOP	28
E. CF (CONSERVATIVE FACTOR)	28
4. DATE, TIME	29
A. HOUR FORMAT	29
B. SET HOUR	30
C. DATE FORMAT	30
D. SET DATE	31
5. BLUETOOTH	32
6. SET AUTO DIM	32
MODE	33
MY INFO	33
DC (DIVE COMPUTER) INFO	33
PLAN	34
LOG	35
HISTORY	36

AIR/NX DIVE OPERATION	37
-----------------------	----

INITIATING A DIVE	38
AIR/NX DIVE MAIN (NO DECOMPRESSION)	38
ALT 1	38

ALT 2	39
DEEP STOP PREVIEW	39
DEEP STOP MAIN	39
SAFETY STOP MAIN	39
SURFACING	40
GAS SWITCHING	41
COMPLICATIONS	42
DECOMPRESSION	42
DECOMPRESSION ENTRY	42
DECOMPRESSION STOP MAIN	42
CONDITIONAL VIOLATION (CV)	43
DELAYED VIOLATION 1 (DV 1)	43
DELAYED VIOLATION 2 (DV 2)	43
DELAYED VIOLATION 3 (DV 3)	44
VIOLATION GAUGE MODE (VGM) DURING A DIVE	44
HIGH PO2	44
HIGH O2 SAT (OXYGEN SATURATION)	45

GAUGE OPERATION MODE	46
----------------------	----

ON THE SURFACE BEFORE A DIVE	47
GAUGE SURFACE MAIN MENU	48
INITIATING A DIVE	49
GAUGE DIVE MAIN	49
GAUGE DIVE ALT	49
DELAYED VIOLATION 3 (DV3)	50
COMPASS MODE	51
COMPASS DISPLAY ICONS	52
OVERVIEW	53
COMPASS MENU	54
CALIBRATE	54
SET HEADING	56
ALARMS	56

REFERENCE	57
-----------	----

UPLOADING/DOWNLOADING	58
CARE AND CLEANING	58
INSPECTIONS AND SERVICE	58
ALTITUDE SENSING AND ADJUSTMENT	58
SPECIFICATIONS	59
SPECIFICATIONS (CONTINUED)	60
INSPECTION / SERVICE RECORD	62
NOTES	63



## WARNINGS AND SAFETY RECOMMENDATIONS

- The Sage is intended for use by recreational divers who have successfully completed a nationally recognized course in scuba diving, and diving with enriched nitrogen-oxygen (nitrox) breathing gas mixtures.
- It must not be used by untrained persons who may not have knowledge of the potential risks and hazards of scuba diving, and diving with enriched nitrogen-oxygen (nitrox) mixtures.
- You must obtain scuba certification, and certification in diving with enriched nitrogen-oxygen mixtures (nitrox) before using the Sage if you have not already done so.
- It is NOT for use by military and commercial divers.
- It should NOT be utilized for any competitive, or repetitive square wave or decompression diving, as it is intended solely for recreational use.
- As with all underwater life support equipment, improper use or misuse of this product can cause serious injury or death.
- Never participate in sharing or swapping of a dive computer.
- Conduct your dives in such a manner so as to insure that you continuously check the computer's proper function.
- Read and understand this owner's manual completely before diving with the Sage.
- If you do not fully understand how to use this dive computer, or if you have any questions, you should seek instruction in its use from your Authorized Sherwood Scuba Dealer before you utilize this product.

## NOTICES

### LIMITED TWO-YEAR WARRANTY

Sherwood Scuba guarantees, to the original purchaser only, that the Sage will be free of defects in materials and/or craftsmanship under normal recreational multilevel scuba use for two years from date of purchase, provided proper care and annual service are performed as described within this owner's guide. Should your Sage prove to be defective for any reason (other than those listed in the limitations section below) it will be repaired or replaced (at Sherwood Scuba's discretion) free of charge excluding shipping and handling charges.

This warranty will be considered void if the registration card is not filled out completely at the time of purchase and mailed to Sherwood Scuba within 30 days of purchase, and/or if the annual inspection is not done according to this owner's manual. This warranty is non-transferrable and applies to the original purchaser only. All correspondence concerning this warranty must be accompanied by a copy of the original sales receipt and a copy of the owner's portion of the warranty registration card including the annual inspection record.

**Once each year you must return the Sage to an Authorized Sherwood Dealer within 30 days of the original purchase date anniversary to keep the two year limited warranty in force.** Annual inspection includes verification of depth accuracy and proper general function. Labor charges for the annual inspection are not covered by the warranty. You must provide a copy of the original sales receipt and a copy of the owner's portion of the warranty registration card including the annual service record to obtain warranty service.

### Statement of Limitations - General:

**Warranty does not cover damage from accident, abuse, battery leakage, tampering, lack of proper care and maintenance and/or proper annual servicing, or improper use of the Sage.** Modifications or repair by anyone other than a Sherwood Sales and Service Center authorized to service the Sage will void the warranty. Sherwood Scuba will not be responsible for recovery or replacement of the product in the event of loss or theft. Sherwood Scuba, its distributors, and retailers make no warranties, either expressed or implied, with respect to this product or its owner's manual except those stated in the preceding paragraphs. **In consideration of the sale of the Sage to you, you agree and understand that in no event will Sherwood Scuba, its distributors or retailers, be held liable for any personal injuries resulting from its operation, or for any other damages whether direct, indirect, incidental, or consequential even if Sherwood Scuba is advised of such damages.**

Some states do not allow the exclusion or limitation of implied warranties or liabilities for incidental or consequential damages, so the above limitation may not apply to you.

**Warranty does not extend to the plastic gauge face, o-rings, batteries, or damage due to accident, abuse, modification, or tampering.**

### COPYRIGHT NOTICE

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### TRADEMARK NOTICE

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### PATENT NOTICE

U.S. Patents, registered in the U.S. Patent and Trademark Office, have been issued to protect the following design features: Data Sensing and Processing Device (U.S. Patent no. 4,882,678), Dive Time Remaining (U.S. Patent no. 4,586,136), Ascent Rate Indicator (U.S. Patent no. 5,156,055), and Systems and Methods for Dive Computers with Remote Upload Capabilities (U.S. Patent no. 9443039).

### DECOMPRESSION MODEL

The programs within the Sage 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 Sage dive computer model is based upon the latest research and experiments in decompression theory. **Still, using the Sage, just as using any 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.

### EUROPEAN UNION DIRECTIVES

- High pressure gas sensing components are in conformity with EN250:2014 - Respiratory equipment - open-circuit self-contained compressed air diving apparatus - requirements, testing and marking – clause 6.11.1 Pressure Indicator.
- Depth and time measurements are in conformity with EN13319:2000 - Diving Accessories - depth gauges and combined depth and time measuring devices.
- EC type examination conducted by SGS United Kingdom Ltd, Weston Super Mare BS22 6WA, UK Notified body No. 0120.

# GETTING STARTED

## BASICS

The Sage is an easy to use dive computer utilizing a three button interface. Divers may choose between either Air/NX (dive) or Gauge Mode. Though the Sage is easy to use, you will get the most out of your new Sage if you take some time to familiarize yourself with its displays and operation. Information has been organized into easy to follow sections to aid you in learning all you need to know. There is also a glossary at the end of this guide for any terms that may sound unfamiliar to you.

## INITIAL ACTIVATION

To activate the Sage, press and release any button. The Sage will also turn on if its metal contacts become wet and you descend below 5 ft (1.5 m) for 5 seconds.

- Upon activation, the unit will display the start up screen and perform a diagnostic check. The Sage checks the display and voltage at this time to ensure that everything is within tolerance.
- It will also check ambient barometric pressure, and calibrate present depth as 0 ft (m). When at 3001 ft (916 m), or higher, it will adjust for the higher altitude.
- After the Diagnostic check, the Sage will display the AIR/NX or Gauge Surface screen (or Dive Main if wet activation).

**⚠NOTE:** The Sage has no off button or command. If no buttons are pressed or dives made, the unit will enter sleep mode after 2 minutes. Within 2 hours of no buttons being pressed or dives made, the unit will shut itself off. However, the Sage will stay on for a 24 hour period after a dive, counting down FLY (time to fly) and DE-SAT (desaturation time) if a dive has been made.

## POWER

The Sage has a user replaceable battery. To provide maximum flexibility, the Sage is compatible with lithium (CR123A 3.0V: Duracel® or Panasonic™) or rechargeable lithium (RCR123A 3.7V: Nitecore®, Olight™) batteries. Other brands of batteries have not been fully tested by Sherwood and are not recommended for use in your Sage computer. Standard lithium batteries average 55-60 dive hours at 60% brightness (40-45 hours at 100% brightness) before needing to be replaced. If using rechargeable options, charge the battery fully before use. With a full charge you can expect to average 40-45 dive hours at 60% brightness (30-35 hours at 100% brightness) before needing to recharge.

The battery should be replaced or recharged before use when the low battery warning is displayed on the dive main screen. Keep in mind that the Sage's color screen is the biggest draw of power. Using full brightness settings will reduce the interval between charges or battery replacement. This setting can be fully customized to your preferences in the Sage settings. Additionally, the Sage screen will sleep after 2 minutes of inactivity to conserve power. Pressing any button will wake the screen up again.

## BATTERY CHARGER

Use only a Sherwood recommended charger designed for use with RCR123A rechargeable lithium cells. Follow the manufacturer's recommendations on proper charging.

## CHANGING THE BATTERY

**⚠NOTE:** The procedures that follow must be closely adhered to avoid entrance of water into the unit. Damage due to improper battery replacement (or subsequent leakage of moisture into the unit) is not covered by the Sage's warranty.

The battery compartment should be opened only 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).

Inspect the buttons, lens, and housing to ensure they are not cracked or damaged. If there is any sign of moisture in the Sage, **DO NOT** attempt to use it for diving until it receives proper service by Sherwood.

### Data Retention

When the battery is removed, settings and nitrogen/oxygen calculations for repetitive dives will be retained in volatile memory until a new battery is installed. You will have the choice of clearing or restoring the data. The Compass will also need to be calibrated after the new battery is installed.

**⚠WARNING:** Clearing the data removes all tissue loading calculations. It should only be chosen if more than 24 hours have passed since the last dive ended.

All parts needed for the battery change that follows are provided in the Sage Battery Kit available from your Sherwood dealer.

### Battery Removal

- Locate the battery cover on the end of the housing.
- Apply a coin to the recessed slot of the cover and turn it counterclockwise out of the housing.
- Remove the Battery and discard it according to local regulations governing disposal of Lithium batteries.

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#### REMOVE COVER



#### REMOVE BATTERY



### Inspection

- Closely check all of the sealing surfaces for any signs of damage that might impair proper sealing.
- Closely examine the battery cover and housing for any signs of damage that might prevent proper threading.
- Closely examine the inside of the battery compartment for any signs of corrosion indicating entrance of moisture into the unit.
- Inspect the buttons, lens, and housing to ensure they are not cracked or damaged.



**WARNING:** If damage or corrosion is found, return your Sage to an authorized Sherwood dealer, and DO NOT attempt to use it until it has received factory prescribed service.

- Remove the cover O-ring by squeezing the sides. Discard, and DO NOT attempt to reuse it.



**CAUTION:** DO NOT use tools to remove the O-ring. To ensure proper sealing, O-ring replacement is required each time the battery is replaced.

#### REMOVE O-RING



### Battery Installation



**CAUTION:** The O-ring must be a genuine Sherwood part that can be purchased from an authorized Sherwood dealer. Use of any other O-ring will void the warranty.

- Very lightly lubricate the new O-ring with silicone grease. Install it onto the battery cover. DO NOT roll the O-ring over the threads, instead stretch it slightly to work it down over the slotted end of the cover into the groove at the base of the threads.
- Insert a new or rechargeable battery, positive (+) side first, into the battery compartment with the negative end facing out.
- Ensure that the battery is properly installed and the cover O-ring is evenly seated around the cover.
- Carefully place the cover (with spring) into the housing and turn clockwise slowly by hand to ensure proper threading.
- Apply a coin and tighten the cover by turning it clockwise until secure. The outer surface of the cover should be flush with the outer surface of the housing.



**CAUTION:** Once the battery cover is installed, the Sage will prompt you to choose the correct battery type. The choices are rechargeable or non-rechargeable. The Sage will measure the battery and make a best guess of the battery type. Though it is up to the diver to ensure the proper selection is made. The Sage will not measure the battery life correctly, shutting off unexpectedly without warning, if the wrong battery type selection is made. If the wrong selection is made accidentally, simply loosen the the battery cover again and repeat the previous steps.

#### INSTALL O-RING



#### REPLACE BATTERY



#### INSTALL COVER



## QUICK DISCONNECT HOSE

The Quick Disconnect allows for convenient removal and storage of your Sage console.

### Removal

- Turn the locking collar counterclockwise to loosen.
- Then push the hose bayonet fitting towards the Sage and turn it counterclockwise 1/4 turn. The hose will release from the console.



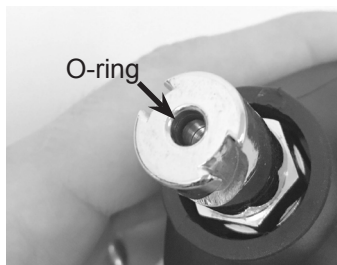
### Assembly

- Visually inspect the fittings and connection O-ring for damage, corrosion, or deterioration.








**WARNING:** If damage, corrosion, or deterioration is found, return your Sage to an authorized Sherwood dealer, and DO NOT attempt to use it until it has received factory prescribed service.

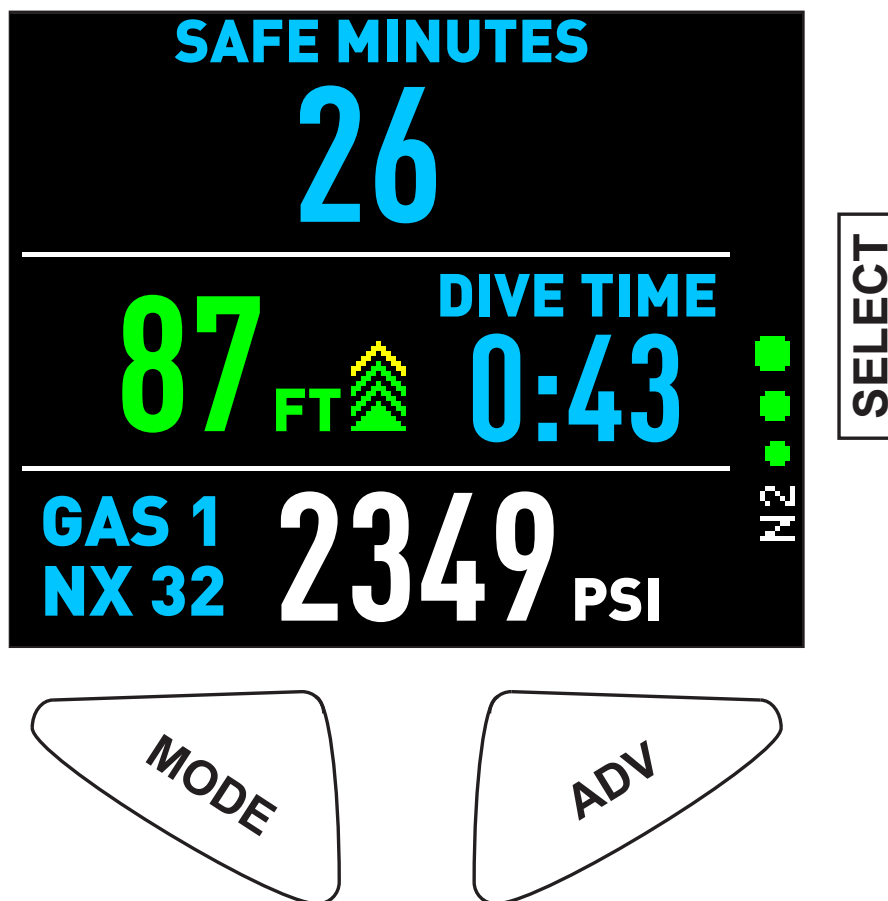
- Line up the Quick Disconnect Hose fitting with the male fitting on the Sage console.
- Then push the two fittings together while turning clockwise 1/4 turn.
- Secure the hose by tightening the locking collar clockwise.





## DISPLAY ICONS



SYMBOL	MEANING
<b>FT</b> or <b>M</b>	DEPTH (FEET OR METERS)
<b>SAFE MINUTES</b>	SAFE MINUTES (DIVE TIME REMAINING)
	SAFE MINUTES VALUE IS AIR TIME REMAINING
<b>O<sub>2</sub></b>	SAFE MINUTES VALUE IS OXYGEN TIME REMAINING
<b>TAT</b>	TOTAL ASCENT TIME
<b>DIVE TIME</b>	ELAPSED DIVE TIME
<b>PSI</b> or <b>BAR</b>	VALUE IS GAS PRESSURE IN PSI OR BAR
<b>AIR</b> or <b>NX32</b>	GAS MIX (AIR OR NITROX 21 - 100% O <sub>2</sub> )
	BATTERY CONDITION IS GOOD (SURFACE ONLY)
	LOW BATTERY WARNING
	LOW BATTERY ALARM
<b>SURF TIME</b>	SURFACE TIME
<b>MAX</b>	VALUE IS MAXIMUM
	BLUETOOTH IS ACTIVE
<b>O<sub>2</sub> SAT</b>	OXYGEN SATURATION
<b>P02</b>	PARTIAL PRESSURE OF OXYGEN
<b>F02</b>	FACTION OF OXYGEN



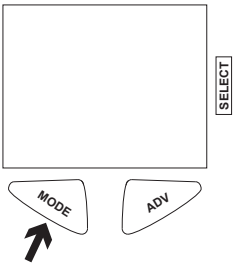
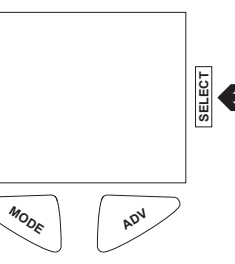
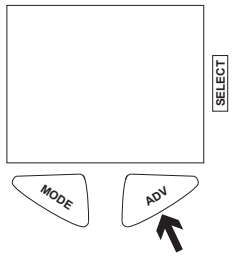
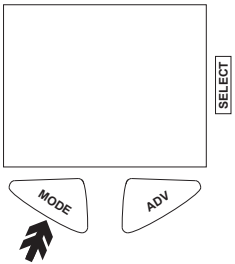
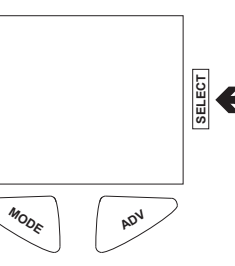
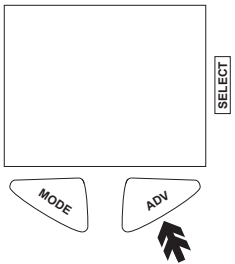
#### BUTTONS

The Sage utilizes 3 control buttons called the MODE, ADV (Advance), and SELECT buttons. They allow you to select mode options and access specific information. They are also used to enter settings and acknowledge the audible alarm.

Pressing different combinations of these buttons will navigate through different menus and options of the Sage. The symbols in the table below will illustrate how to proceed through the menus.

SYMBOL	MEANING
	PRESS BUTTON LESS THAN 2 SECONDS
	HOLD BUTTON GREATER THAN 2 SECONDS

## BUTTON FUNCTIONS

ACTION	FUNCTION
	<ul style="list-style-type: none"> <li>• to access main menus from main screens</li> <li>• to step up the screen, backward through selections</li> <li>• to toggle or change setpoints</li> </ul>
	<ul style="list-style-type: none"> <li>• to select, save an option or setting</li> </ul>
	<ul style="list-style-type: none"> <li>• to access Alt screens</li> <li>• to step down the screen, advance through selections</li> <li>• to toggle or change setpoints</li> </ul>
	<ul style="list-style-type: none"> <li>• to exit a menu directly to the Main screen</li> <li>• to access Compass Menu on the Surface in Compass Mode</li> </ul>
	<ul style="list-style-type: none"> <li>• to switch between Compass mode and the active diving mode, while on the Main screen</li> <li>• to exit or step back to the previous screen or setting</li> </ul>
	<ul style="list-style-type: none"> <li>• to increase a setting value at a faster rate</li> <li>• to access Set Brightness screen (from AIR/ NX or Gauge Main screens)</li> </ul>

# DIVE FEATURES

### SAFE MINUTES (DIVE TIME REMAINING)

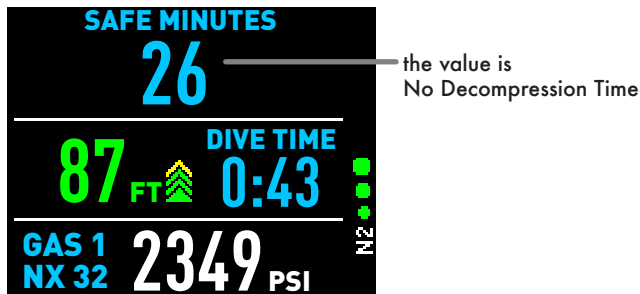
The Sage constantly monitors No Decompression status, O<sub>2</sub> Accumulation, Air Time Remaining, and it will display whichever time is the least amount available as Safe Minutes on the No Decompression Dive Main screen. Times other than No Decompression will be identified further with an O<sub>2</sub> or ATR (Air Time Remaining) icon.

### NO DECOMPRESSION

No Decompression is the maximum amount of time that you can stay at your present depth before entering decompression. 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 compartment is closest to this maximum level is the controlling compartment for that depth. Its resulting value will be displayed simply as Safe Minutes. It will also be displayed graphically as the N<sub>2</sub> Bar Graph, see Bar Graphs later in this section.

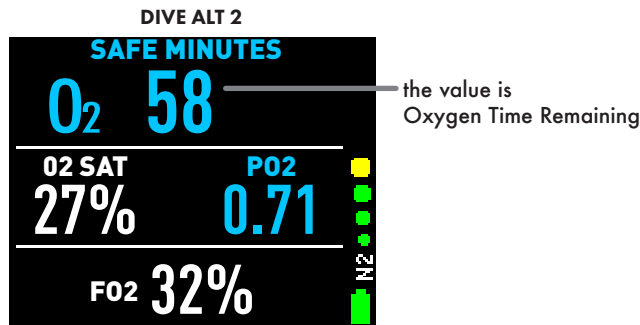
As you ascend, the N<sub>2</sub> Bar Graph will recede as control shifts to slower compartments. This is a feature of the decompression model that is the basis for multilevel diving, one of the most important advantages that Sherwood dive computers offer.



### O<sub>2</sub> (OXYGEN TIME REMAINING)

When set for nitrox operation, O<sub>2</sub> SAT (Oxygen Saturation) and O<sub>2</sub> SAFE MINUTES will be displayed on the ALT 2 during a dive. O<sub>2</sub> SAT (Oxygen Saturation) is displayed as a percentage of allowed saturation identified by the O<sub>2</sub> SAT graphic. The limit for O<sub>2</sub> SAT (100%) is set at 300 OTU (Oxygen Tolerance Units) per dive or 24 hour period. See the chart at the back of this manual for specific times and allowances. O<sub>2</sub> SAT and O<sub>2</sub> SAFE MINUTES are inversely related; as the O<sub>2</sub> SAT value increases the O<sub>2</sub> SAFE MINUTES value decreases.

When the O<sub>2</sub> SAFE MINUTES value becomes less than the No Decompression calculations for the dive, SAFE MINUTES (Dive Time Remaining) will be controlled by O<sub>2</sub> SAT and the O<sub>2</sub> SAFE MINUTES value will be displayed on the Dive Main screen, identified by the O<sub>2</sub> icon.



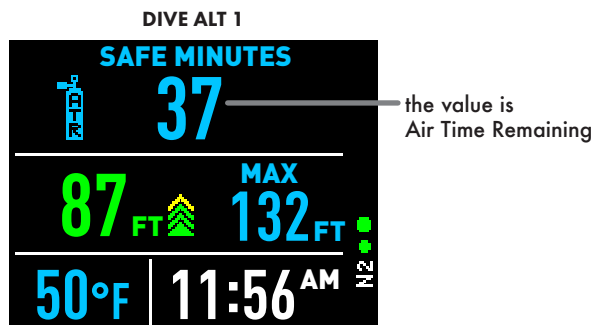
## ATR (AIR TIME REMAINING)

ATR is the time you can remain at your present depth and still safely surface with the tank pressure reserve that you selected during setup (the End Pressure Alarm setting).

The Sage calculates ATR using a patented algorithm that is based on a diver's individual air consumption rate and current depth. Tank Pressure is measured once each second and an average rate of consumption is calculated over a 60 second period. This rate of consumption is then used in conjunction with a knowledge of the depth dependence to predict the air required for the diver to make a safe controlled ascent including any Stops.

Air consumption and depth are continuously monitored and ATR reflects any change in circumstances. For example, when you suddenly find yourself swimming against a strong current and begin breathing more rapidly, the Sage will recognize the change and adjust the ATR accordingly.

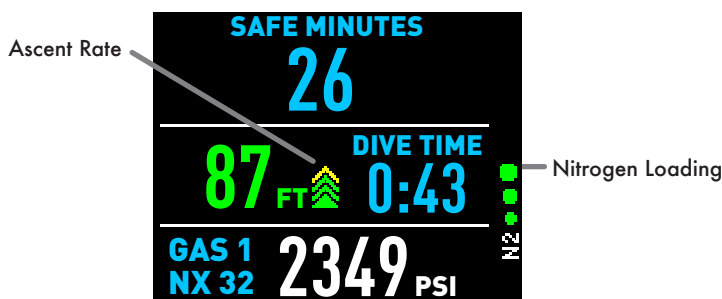
ATR Safe Minutes will display on the Dive Main screen when it is the controlling factor of dive time. ATR Safe Minutes can be found on the ALT 1 screen when ATR is not the controlling factor of a dive.



## BAR GRAPHS

The Sage features two specific bar graphs.

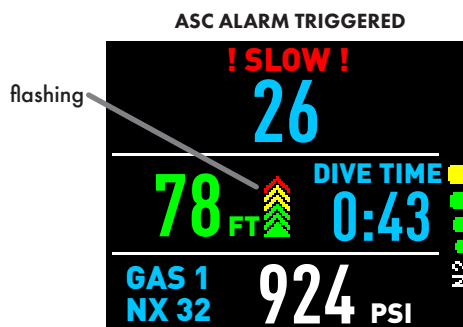
1. The one in the center represents ascent rate. It is referred to as the Ascent Bar Graph.
2. The one on the right represents nitrogen loading. It is referred to as the N2 Bar Graph.



## ASC BAR GRAPH

The Ascent Bar Graph provides a visual representation of ascent speed (i.e., an ascent speedometer). When the ascent is faster than the recommended 30 fpm (9 mpm), all segments flash until the ascent is slowed.

# OF SEGMENTS	ASCENT RATE, FPM (MPM)
0	0 - 5 (0 - 1.5)
1	>5 - 10 (>1.5 - 3.0)
2	>10 - 15 (>3.0 - 4.6)
3	>15 - 20 (>4.6 - 6.1)
4	>20 - 25 (>6.1 - 7.6)
5	>25 - 30 (>7.6 - 9.1)
6	>30 (>9.1)



## N2 BAR GRAPH

The N2 Bar Graph represents your relative No Decompression or Decompression status. As your depth and elapsed dive time increase, the bar graph will grow in length, shift from green to amber, and ultimately to red (indicating a Decompression condition). As you ascend the bar graph recedes, indicating that additional No Decompression time is available. The Sage monitors multiple theoretical nitrogen compartments simultaneously. The N2 Bar Graph displays the one that is in control of your dive at any given time.

## ALGORITHM

The 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. To create even greater margins of safety with respect to decompression, a Conservative Factor as well as No Decompression Deep and Safety Stops can be included for No Decompression dives.

## CONSERVATIVE FACTOR

When the CF is set On, the dive time remaining, No Decompression/O<sub>2</sub> MIN, which are based on the algorithm and used for N<sub>2</sub>/O<sub>2</sub> calculations and displays relating to Plan Mode, will be reduced to the values available at the altitude level that is 3,000 (915 m) higher than the actual altitude at activation. Refer to the charts in the back of this manual for dive times.

## DS (DEEP STOP)

When the DS selection is set ON, it will trigger after descending deeper than 80 ft (24 m). The Sage then calculates (continually updating) a Stop Depth equal to ½ the Max Depth.



**NOTE:** The Deep Stop feature only works in DIVE mode while within No Decompression times.

- While 10 ft (3m) deeper than the calculated Deep Stop, you will be able to access a Deep Stop Preview screen that will display the current calculated Deep Stop Depth/Time.
- Upon initial ascent to within 10 ft (3 m) below the calculated Stop Depth, a Deep Stop screen displaying a Stop Depth at ½ the Max Depth will appear with a countdown timer beginning at 2:00 (min:sec) and counting down to 0:00. If you descend 10 ft (3 m) below, or ascend 10 ft (3 m) above, the calculated Stop Depth for 10 seconds during the countdown, the No Decompression Main will replace the Deep Stop Main display and the Deep Stop feature will be disabled for the remainder of that dive. There is no penalty if the Deep Stop is ignored.
- In the event that you enter Decompression, exceed 190 ft (57 m), or a High O<sub>2</sub> SAT (Oxygen Saturation) condition, ≥ 80%, occurs, the Deep Stop will be disabled for the remainder of that dive.
- The Deep Stop is disabled during a High PO<sub>2</sub> Alarm condition, ≥ set point.

## SS (SAFETY STOP)

Upon ascent to the Safety Stop depth 20 ft (6 m) for 1 second on a No Decompression dive in which depth exceeded 30 ft (9 m) for 1 second, a beep will sound and a Safety Stop at the depth 20 ft (6 m) will appear on the NX/AIR Dive Main display with a countdown beginning at the Safety Stop time 3:00 (min:sec) and counting down to 0:00.

- In the event that you descend 10 ft (3 m) deeper than the Stop Depth for 10 seconds during the countdown, or the countdown reaches 0:00, the No Decompression Main screen will replace the Safety Stop Main screen which will reappear upon ascent to 20 ft (6 m), the Safety Stop depth, for 1 second.
- In the event that you enter Decompression during the dive, complete the Decompression obligation, then descend below 30 ft (9 m); the Safety Stop Main will appear again upon ascent to the Safety Stop depth, 20 ft (6 m), for 1 second.
- If you ascend to 3 ft (0.9 m) of the surface for 1 second, the Safety Stop will be canceled for the remainder of that dive.
- There is no penalty if you surface prior to completing the Safety Stop or choose to ignore it.

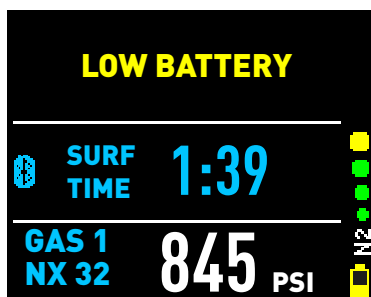
## LOW BATTERY WHILE ON THE SURFACE



**WARNING:** Change the battery before diving if your Sage indicates the Battery Low Warning or Alarm.

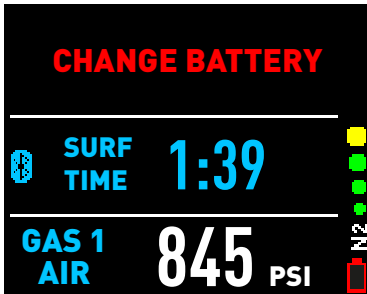
### Warning Level

- The Sage functions continue but screen brightness is limited to 60% max.
- The Battery icon and LOW BATTERY message appears amber.



#### Alarm Level

- All operations cease.
- The Battery icon and CHANGE BATTERY message appear red.
- The Battery icon flashes for 5 seconds then the unit shuts off.



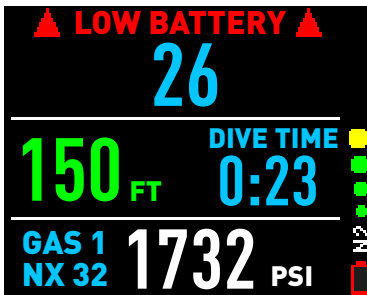
#### LOW BATTERY DURING A DIVE

##### Warning Level

- The Sage functions continue but screen brightness is limited to 60% max.
- The battery icon appears solid upon entry into Surface mode.

##### Alarm Level

- The Sage functions continue but screen brightness is limited to 60% max.
- The Battery icon appears flashing. 5 seconds after entering Surface mode the Sage will shut down.



#### AUDIBLE ALARM

While operating in Dive or Gauge mode, the audible alarm will emit 1 beep per second for 10 seconds when alarms strike. During that time, the audible alarm can be acknowledged and silenced by pressing the SELECT button.

The audible alarms will not be active if the audible alarm is set to OFF (a Set Alarms setting).

Events that emit (10) beeps >> each sound for ½ sec with ½ sec silence between beeps:

- DIVE, GAUGE - ATR Alarm.
- DIVE, GAUGE - Turn (Pressure) Alarm (Gas 1 ONLY)
- DIVE, GAUGE - End (Pressure) Alarm (GAS 1 ONLY).
- DIVE, GAUGE - Ascent Rate too fast.
- DIVE, GAUGE - Depth Alarm.
- DIVE - Dive Time Alarm.
- DIVE - Reserve Time Alarm.
- DIVE - N2 Bar Graph Alarm.
- DIVE - entry into Decompression.
- DIVE - Conditional Violation.
- DIVE - Delayed Violations 1, 2.
- DIVE, GAUGE - Delayed Violation 3.
- DIVE, GAUGE - entry into Violation Gauge Mode.
- DIVE - PO2 Warning and Alarm.
- DIVE - O2 Warning and Alarm.
- DIVE - Gas Switch Alarm.

Events that emit (3) beeps >> each sound for ½ sec with ½ sec silence between beeps:

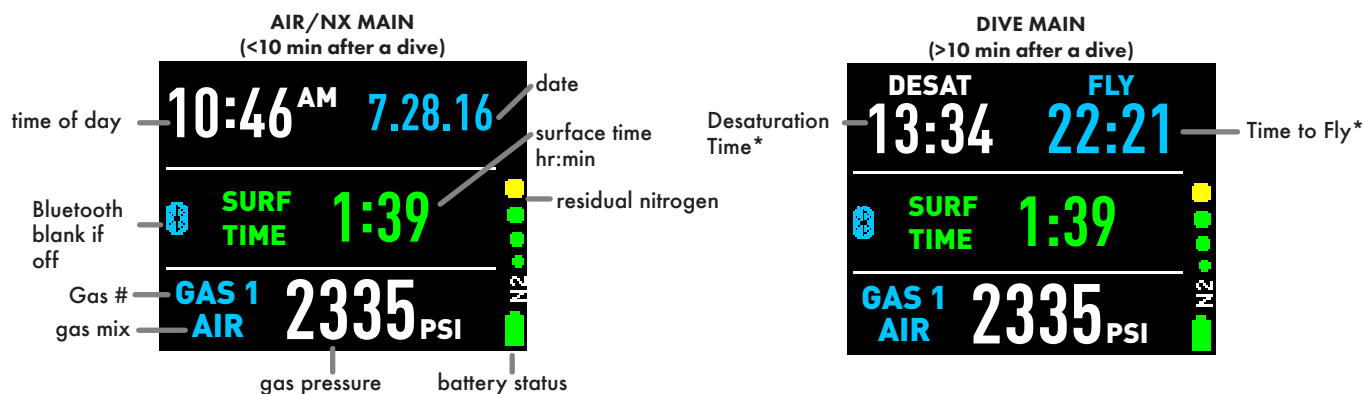
- DIVE, GAUGE - Ascent Rate warning.



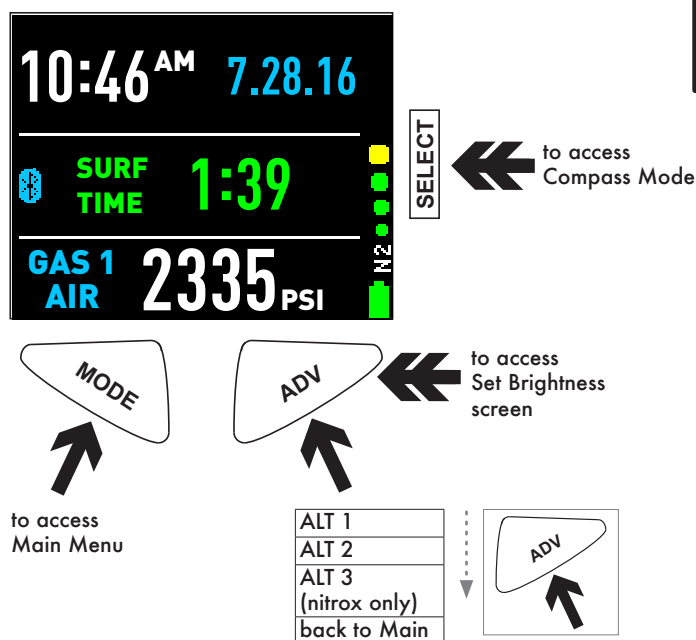
# **AIR/NX SURFACE MODE**

## ON THE SURFACE BEFORE A DIVE

The AIR/NX Main screen will display the Dive Time and the selected FO2 of the breathing gas. The surface time displayed is the time since activation or the surface interval after a dive.



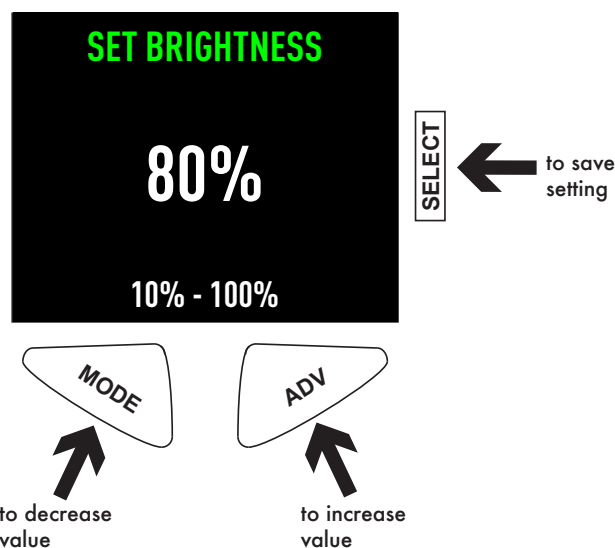
\*DESAT and FLY are discussed in detail in the sub section "Surfacing" found in the following chapter "Air/NX Dive Operation".



## SET BRIGHTNESS

The level (%) of screen brightness can be adjusted to optimize screen appearance in different lighting conditions or to conserve battery power. Press the Select button to cause the percentage value to flash and allow it to be changed.

**NOTE:** During a Low Battery Warning or Alarm condition, the level will be limited to 60% maximum.



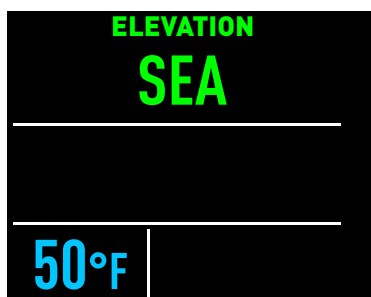
### ALT 1 (LAST DIVE)

The ALT 1 screen displays essential data from the last dive. This screen is bypassed if there has been no previous dive within the current activation cycle.



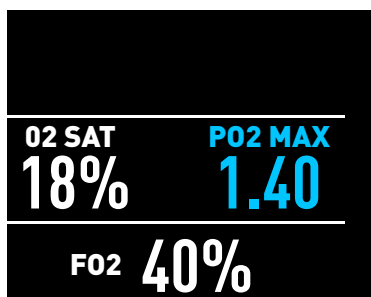
### ALT 2

The ALT 2 screen displays current elevation and temperature.



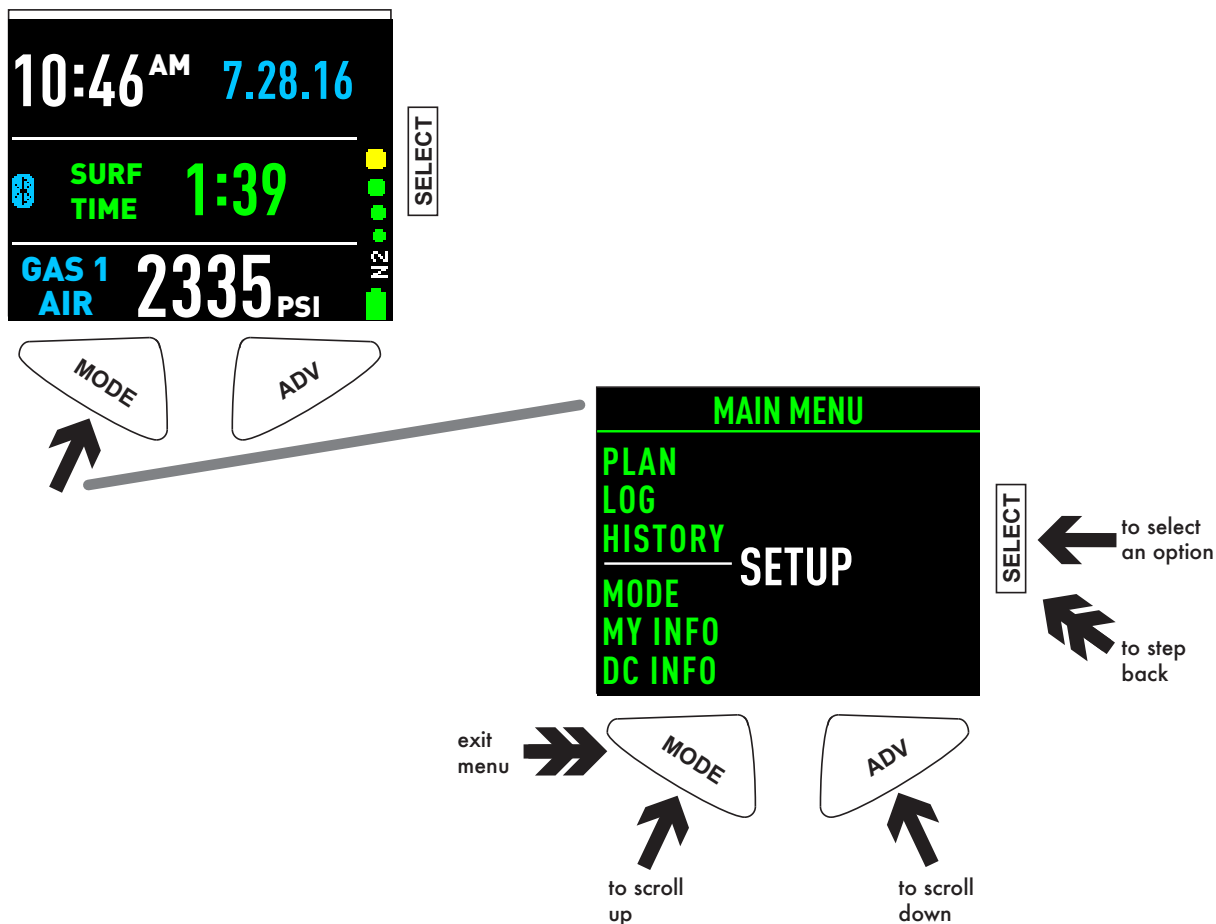
### ALT 3

The ALT 3 screen displays only after a nitrox dive. It displays the current oxygen saturation level, max PO<sub>2</sub>, and the current gas mix.



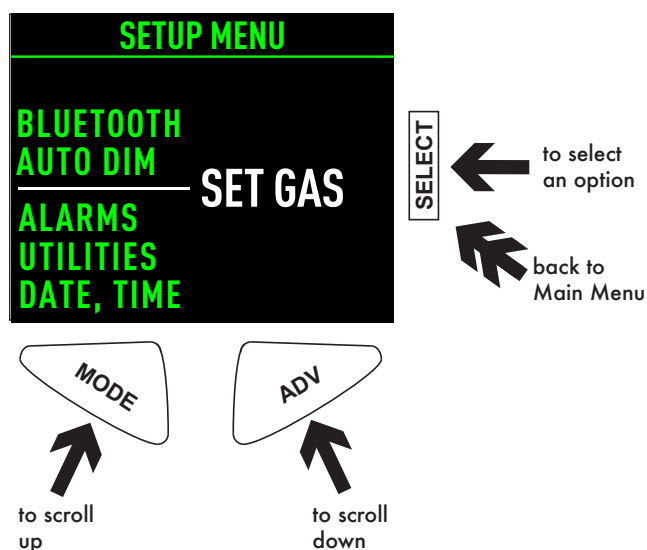
## MAIN MENU

To plan dives, set gases, alarms, and change other settings you must navigate through the Main Menu. Enter the menu by pressing the MODE button. Press the SELECT button to choose options highlighted in white. All Main Menu options will be discussed in the order they appear in the menu below.



## SETUP MENU

This menu allows you to adjust the Date, Time, Bluetooth features., Auto Dim, Set Gas, Alarms, and Utilities.



## 1. SET GAS

Within this submenu you can change the available gas mixes from OFF, AIR, or to any nitrox mix between 21 - 99 % O<sub>2</sub> or O<sub>2</sub> (100% O<sub>2</sub>) . If you save a nitrox mix value for any gas, a Set Gas# PO<sub>2</sub> Max screen will display. You can then set a Max PO<sub>2</sub> warning alarm. The corresponding MOD (Maximum Operating Depth) will display with the current PO<sub>2</sub> Alarm setting for the selected gas. Additionally, the Sage allows for each gas (1 - 3) to have individual PO<sub>2</sub> alarm settings.

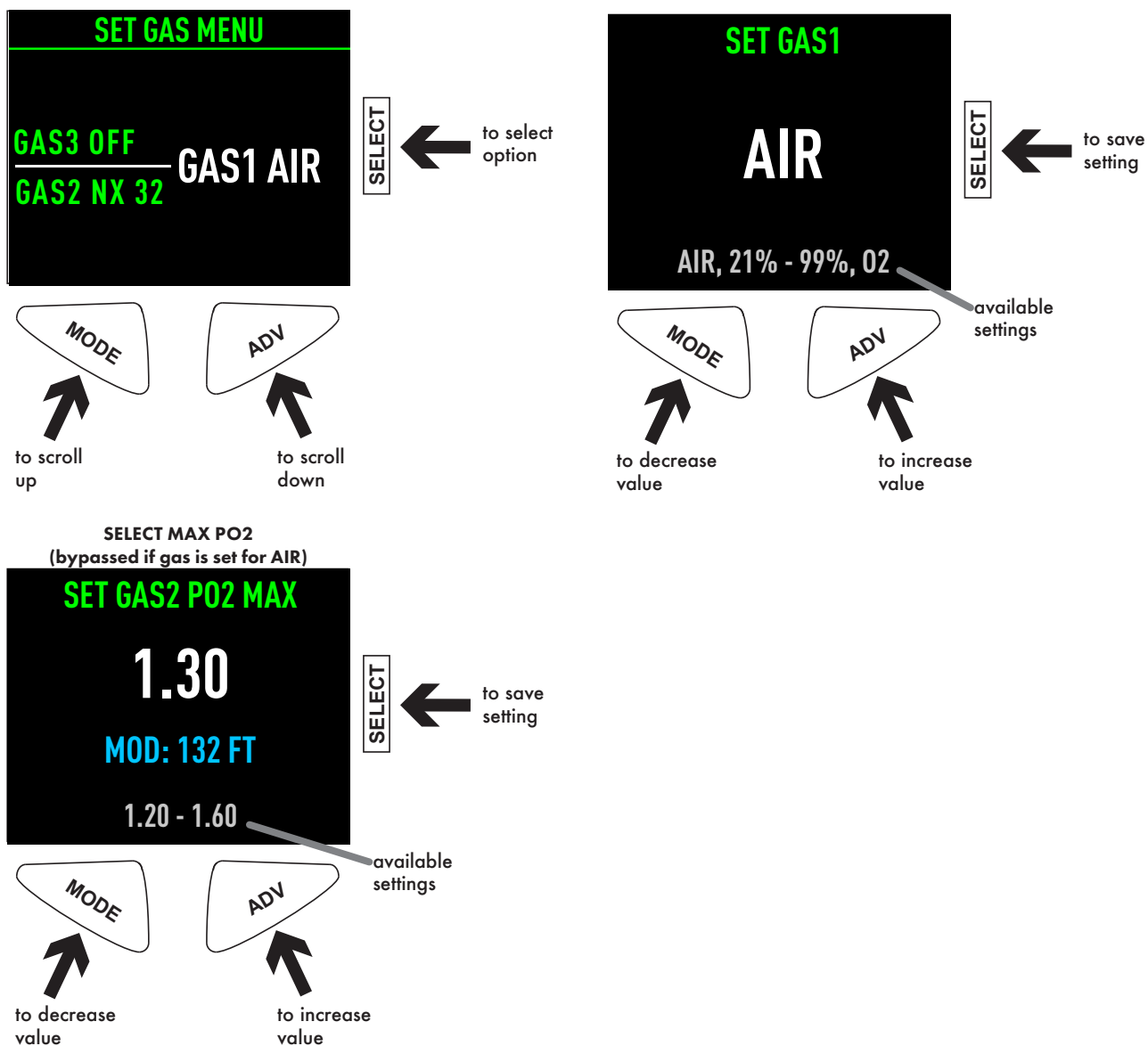
Default settings are FO<sub>2</sub> Air with no PO<sub>2</sub> alarm value for Gas 1, and OFF for Gas 2 and 3. Settings revert to the defaults when 24 hours elapse without conducting a dive.

**NOTE:** Once any Gas is set for Nitrox, any other Gas set for AIR will automatically be set to 21%. The AIR option will not be displayed as an FO<sub>2</sub> setting until 24 hours elapse after the last dive.

**NOTE:** When FO<sub>2</sub> is set for AIR, oxygen related data (such as PO<sub>2</sub>, % O<sub>2</sub>) will not be displayed at any time during the dive, on the surface, or in Plan Mode. Though these oxygen values will be tracked internally for use in any subsequent nitrox dives.

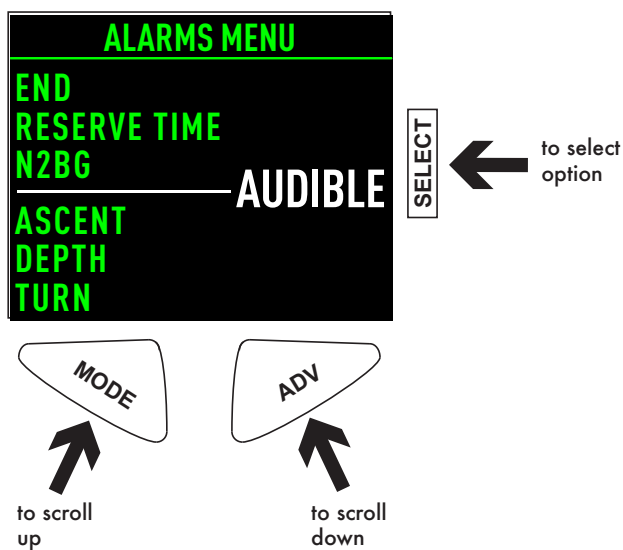
**NOTE:** Gas 1 cannot be set to OFF.

**NOTE:** Gases 2 and 3, when selected during a dive, will display SPG (Submersible Pressure Gauge) instead of a pressure reading on the Dive Main screen.



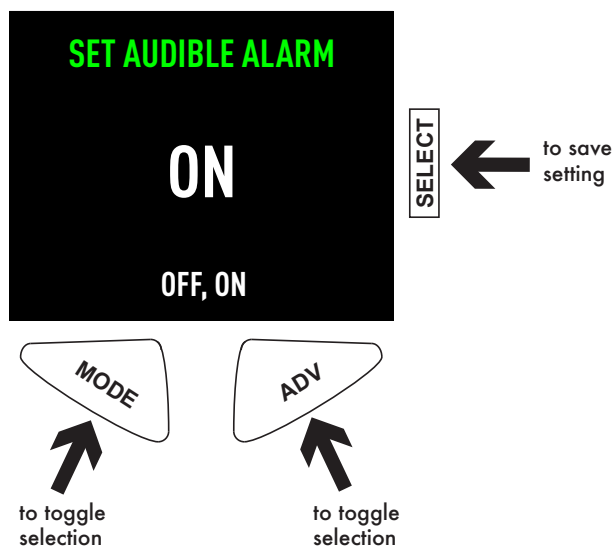
## 2. ALARMS

Within this submenu you can customize the following seven alarm settings. When one of these alarms is triggered the critical data will flash on the Dive Main screen.



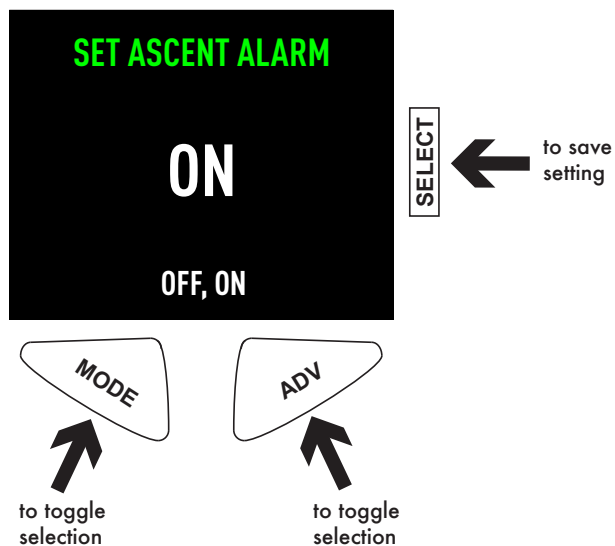
### A. AUDIBLE

The Audible Alarm allows you to set audible alarms ON or OFF.



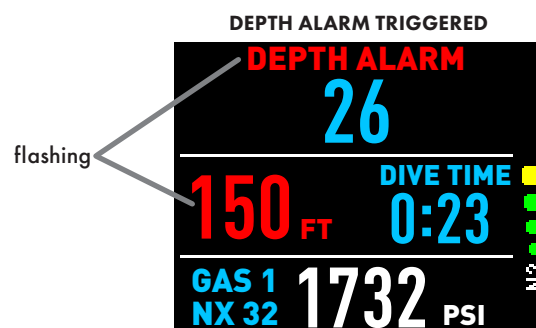
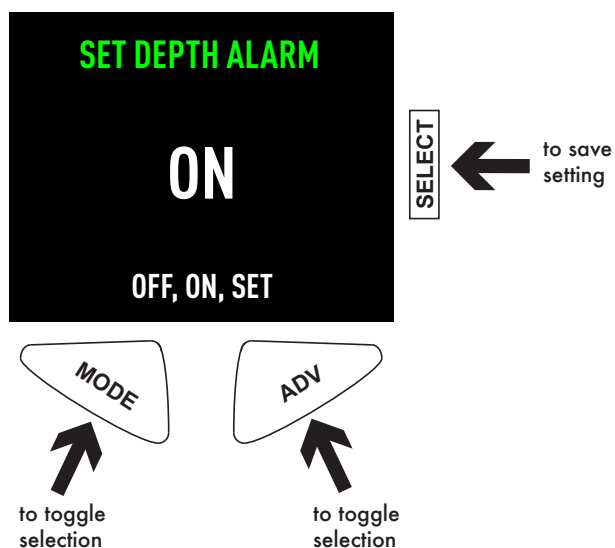
## B. ASCENT

Factory set ON, the Ascent Alarm can also be set OFF. When set OFF, the alarm will not sound as ascent rate increases.



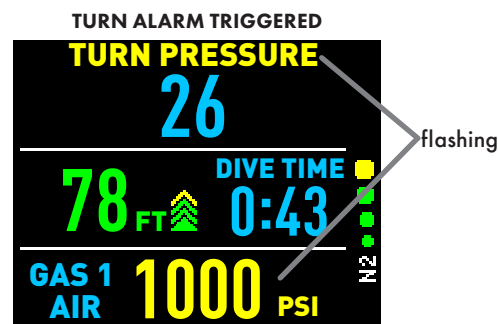
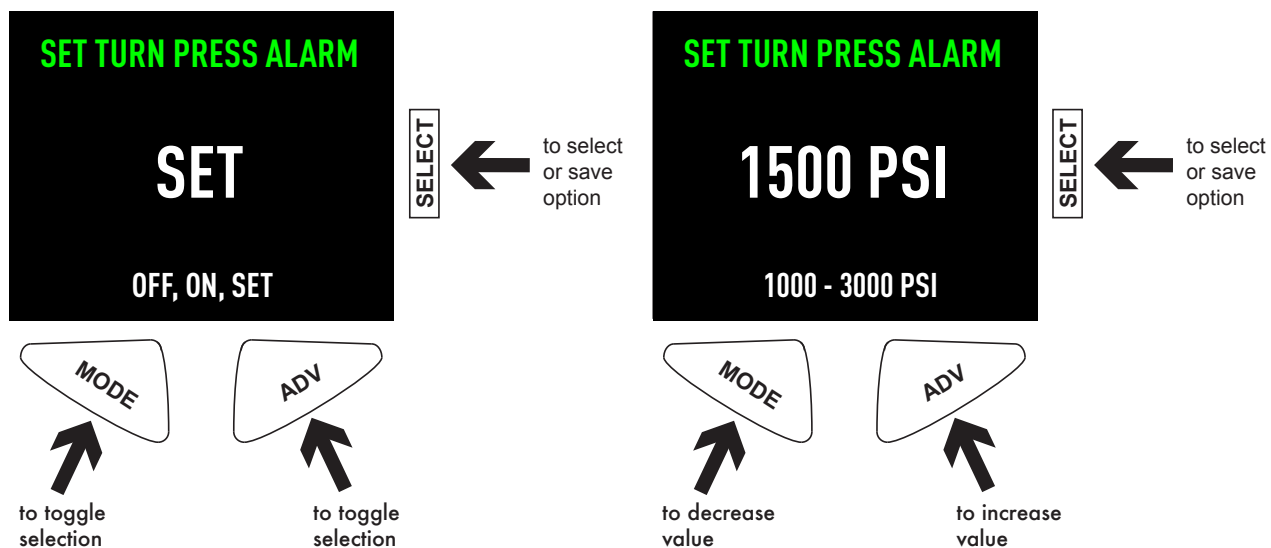
## C. DEPTH

Factory set ON, the Depth Alarm can also be set OFF. When set OFF, the Alarm will not sound as Depth increases toward 330 feet (120 meters).



#### D. TURN

The Turn (Pressure) Alarm allows you to set an alarm to go off at a designated turn pressure. You may choose from OFF or 1000 to 3000 PSI (70 to 205 BAR) in increments of 250 PSI (5 BAR).



#### E. END

The End (Pressure) Alarm allows you to set an alarm for when you reach a designated end pressure. You may choose from 300 to 1500 PSI (20 to 105 BAR) in increments of 100 PSI (5 BAR).

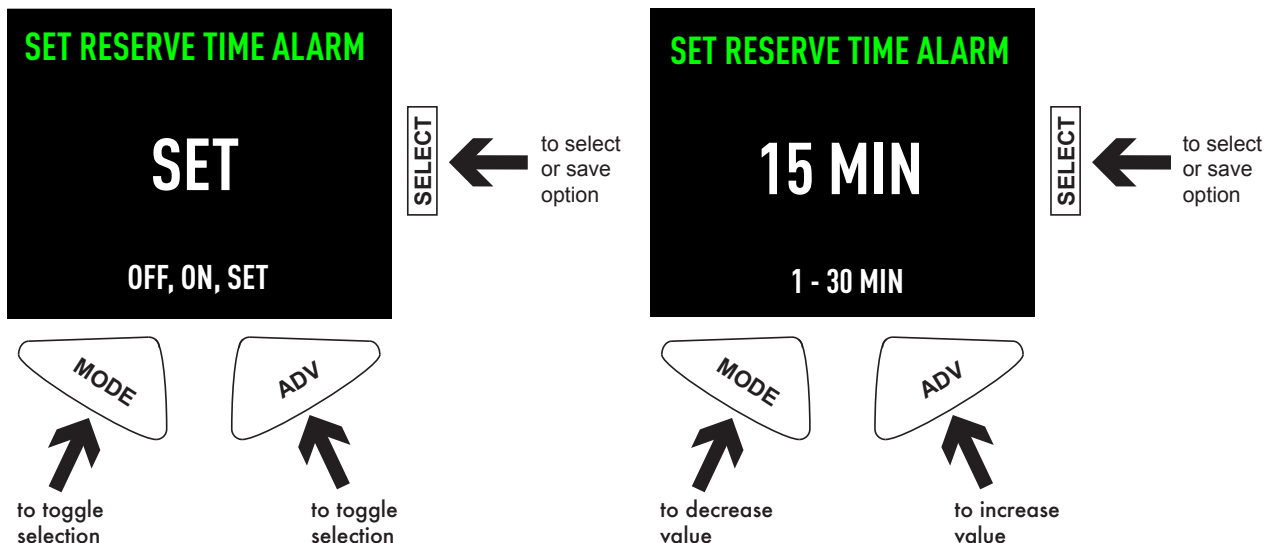




## F. RESERVE TIME

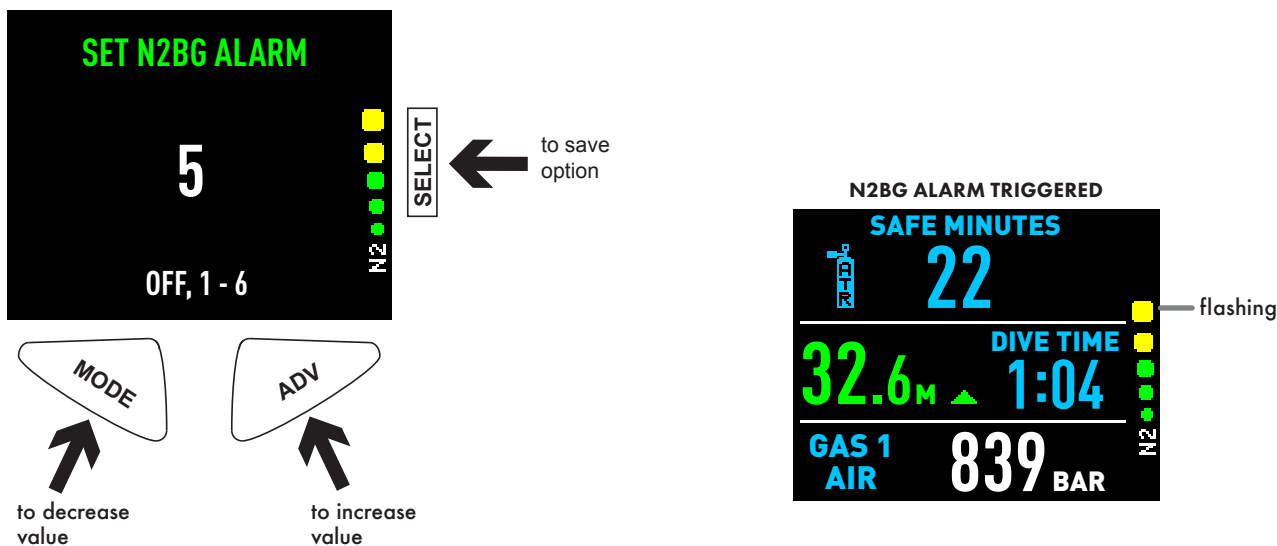
The Safe Minutes (dive time remaining) display shows No Decompression Time, O2 Time, or Air Time Remaining, the least available at that moment. Whichever decreases to the value set will sound the Alarm.

Factory set ON, the Reserve Time Alarm can also be set OFF. When set OFF, the Alarm will not sound as Safe Minutes decreases toward 0 minutes.



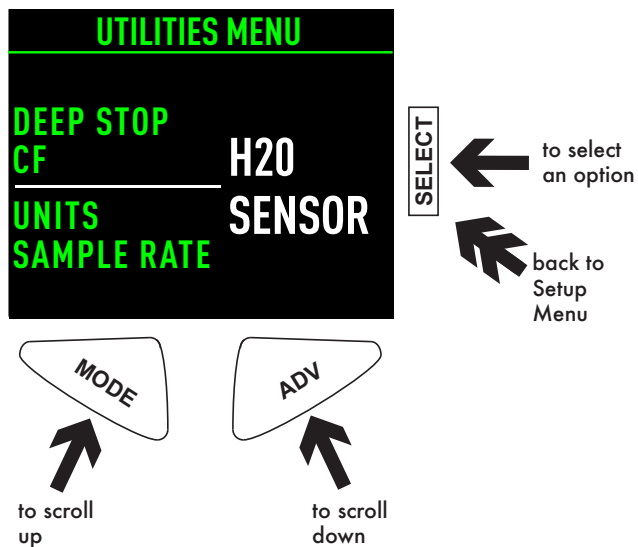
## G. N2BG

The N2BG (Nitrogen Bar Graph) Alarm feature allows you to set an alarm to go off at a predetermined number of N2 bar graph segments.



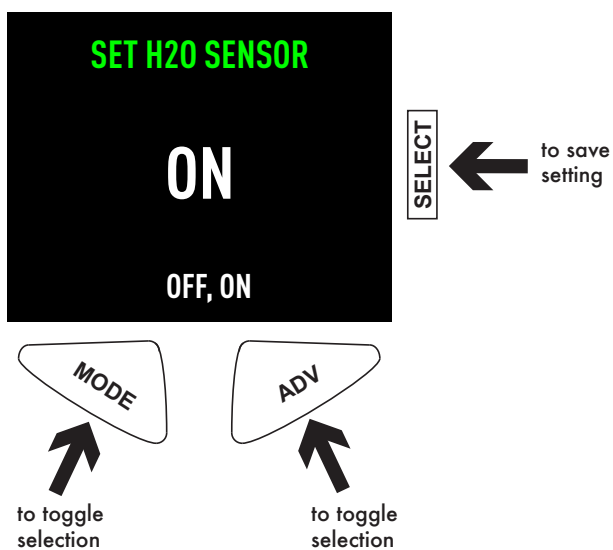
### 3. UTILITIES

Within the Set Utilities menu you can customize the following five operational functions.



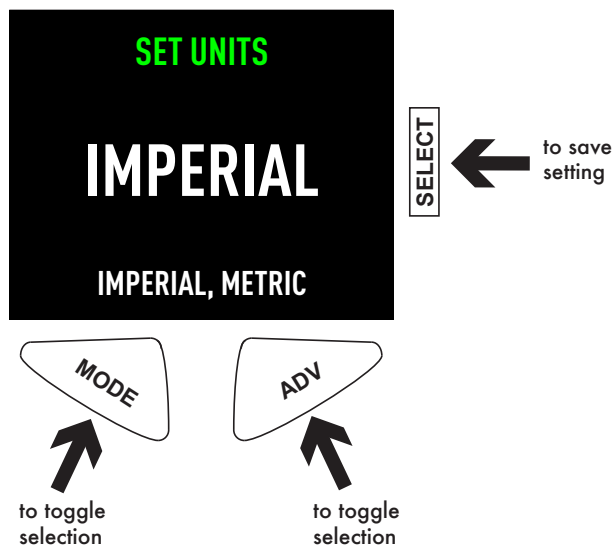
#### A. H2O SENSOR

The H2O Sensor feature allows you to set SALT or FRESH water environment for accurate depth calculations.



## B. UNITS

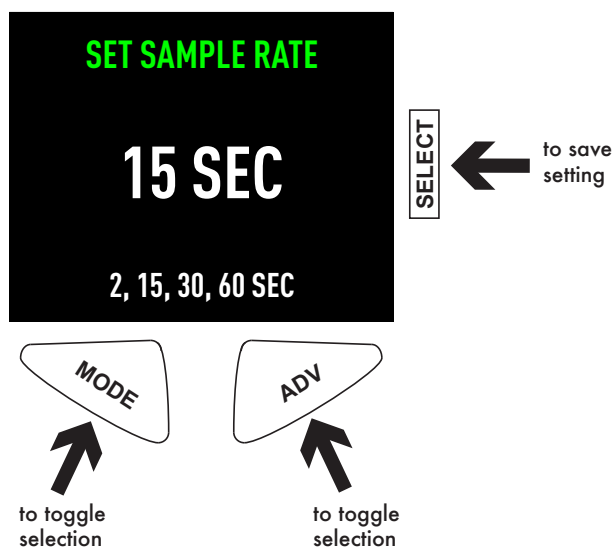
The Units feature allows you to select whether Imperial (FT, PSI) or Metric (M, BAR) units of measure will be displayed.



## C. SAMPLE RATE

The Sample Rate controls how frequently the Sage stores a data snapshot, for later PC Download, during a dive. Setting options are 2, 15, 30, or 60 second intervals. Shorter intervals will provide a more precise record of your dives.

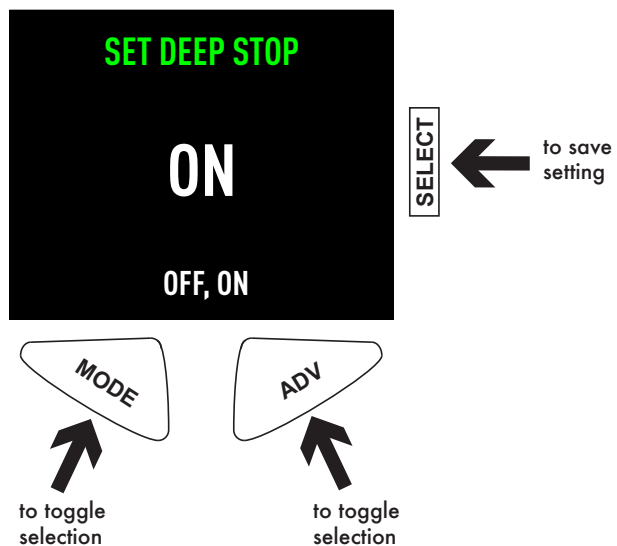
**NOTE:** New data will automatically overwrite the oldest data in memory when the memory becomes full. The Sage Log and PC Download data is stored separately in different partitions of the memory. The Log only stores a short summary of each dive. Alternately, the PC Download function stores much larger files for each dive. Depending on the chosen settings and dive durations, it is possible to see dives stored in the Sage's onboard Log that have already been overwritten in the PC Download Partition. Choosing a longer Sample Rate interval will consume less memory per dive. See the chart below for an estimate of download memory capacity. Remember to download your dives more frequently if you are using a shorter Sample Rate interval.



AIR/NX & GAUGE DOWNLOAD MEMORY CAPACITY	
SAMPLE RATE (seconds)	MAXIMUM HOURS
2	8
15	64
30	128
60	256

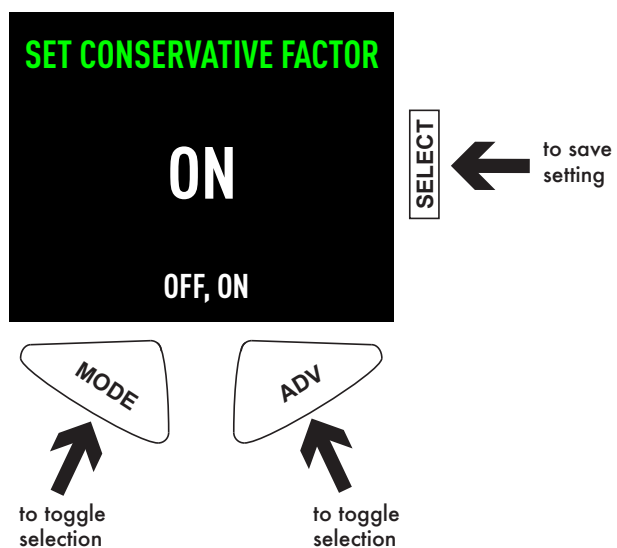
#### D. DEEP STOP

The Deep Stop feature (see p. 15) can be set ON or OFF.



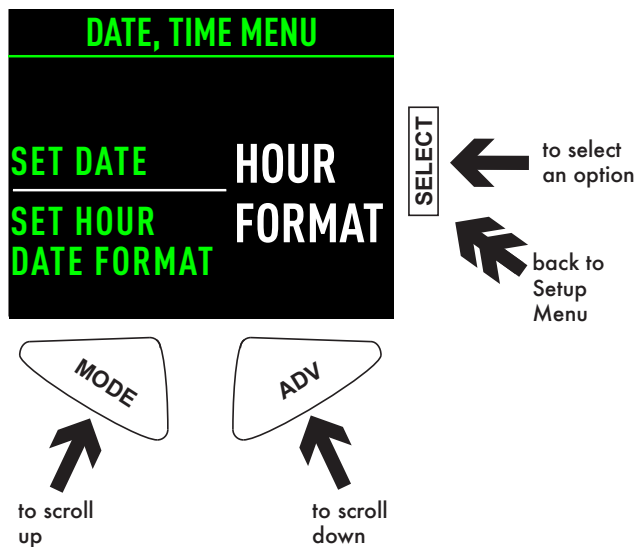
#### E. CF (CONSERVATIVE FACTOR)

The Conservative feature (see p. 15) can be set ON or OFF



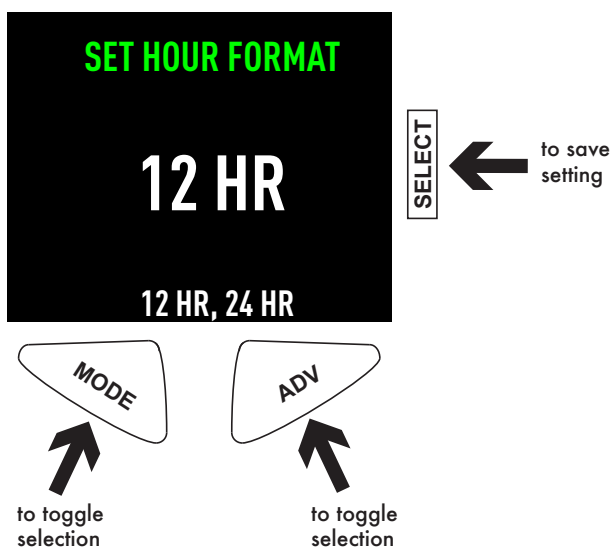
#### 4. DATE, TIME

Within this menu you can set the formats, date, and time of day.



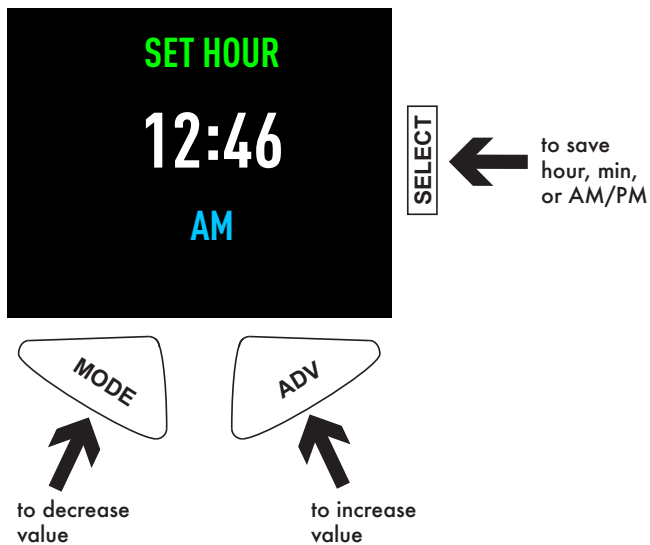
##### A. HOUR FORMAT

Choose between 12 and 24 hr formats.



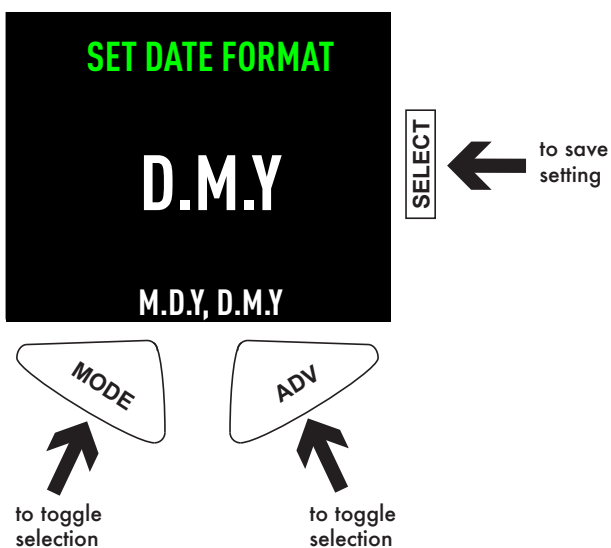
## B. SET HOUR

Set the hour, minute, and AM/PM if set for 12 hour format.



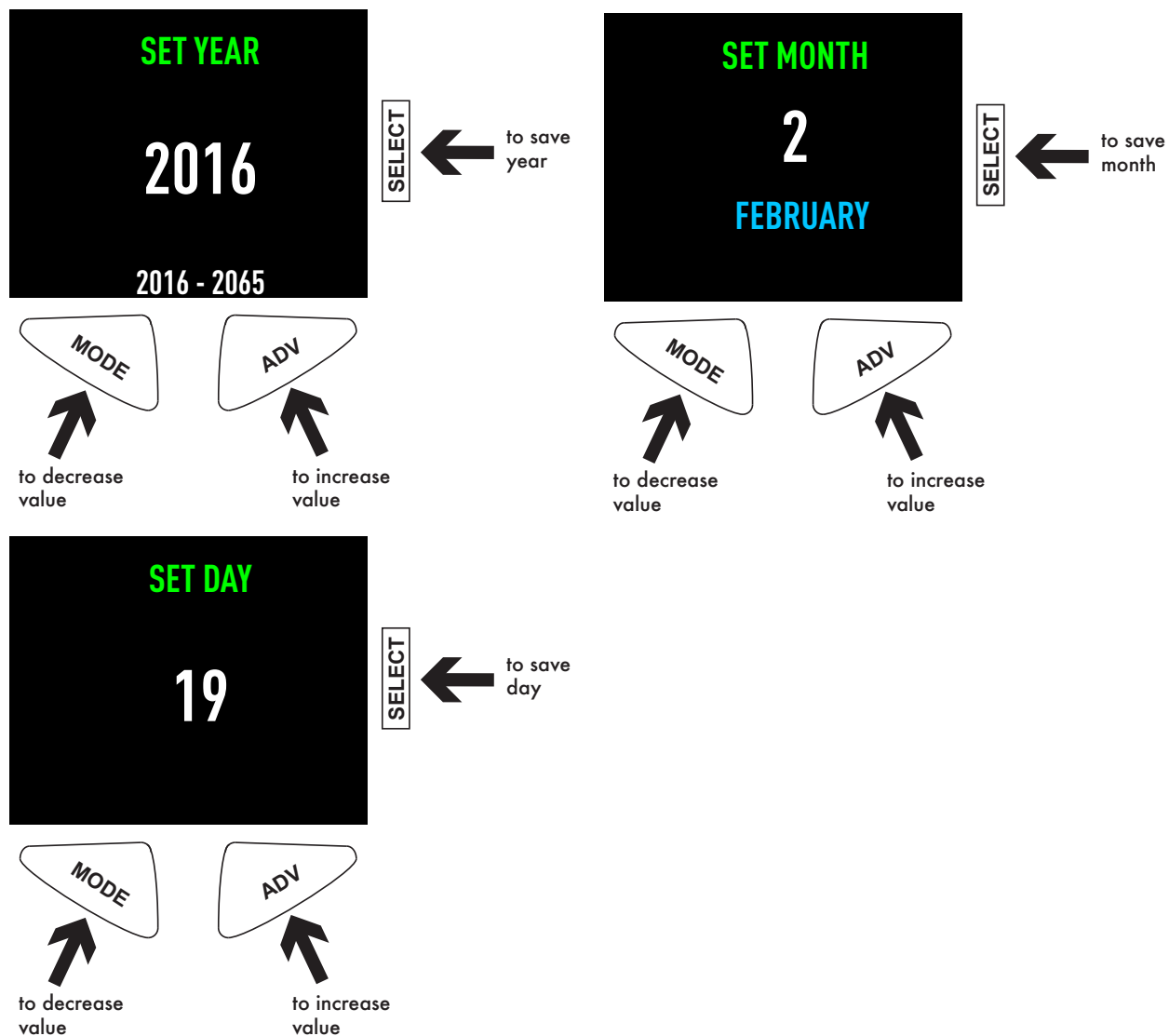
## C. DATE FORMAT

Choose between M.D.Y (Month.Day.Year) or D.M.Y (Day.Month.Year) format.



#### D. SET DATE

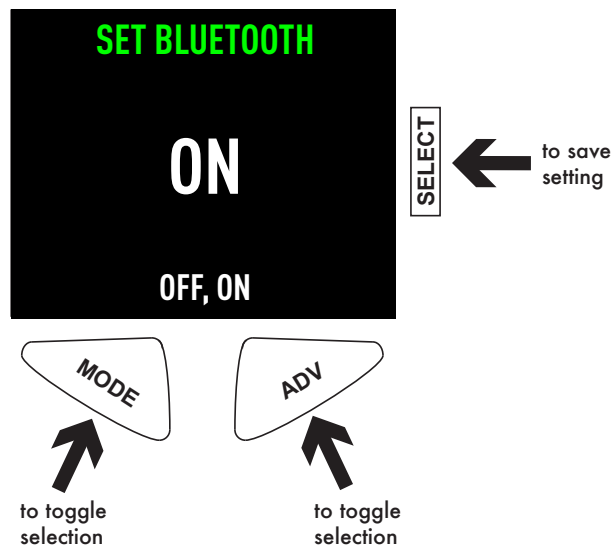
Set the year, month, and day.



## 5. BLUETOOTH

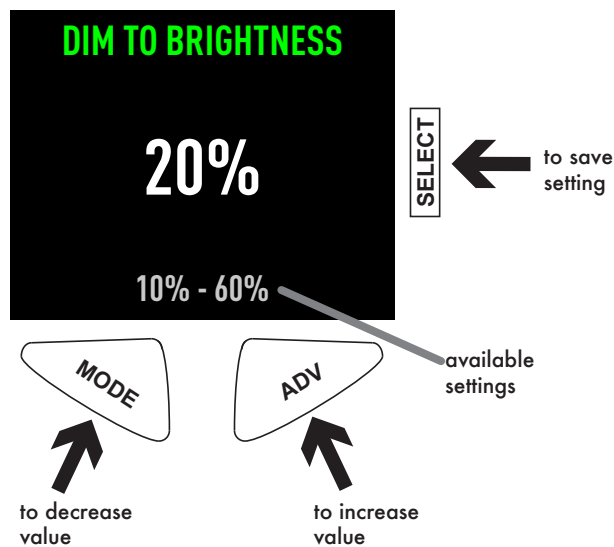
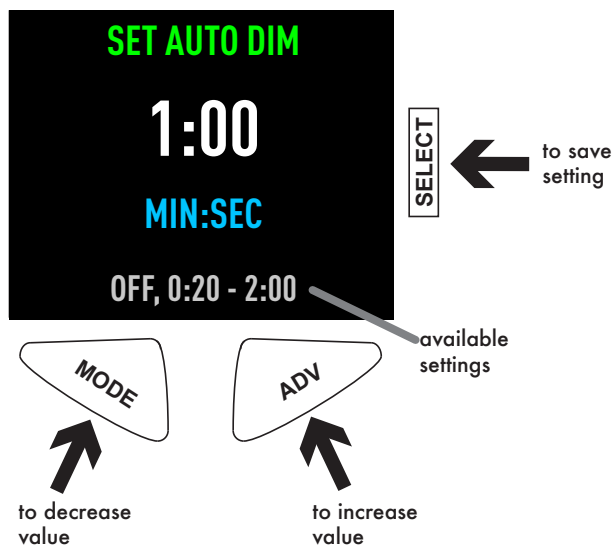
Within this screen the Bluetooth may be turned ON or OFF. When Bluetooth is turned on it will operate in sniffing mode (searching for compatible devices) while on the surface. Communication with your Sage must be initiated with your traditional computer or mobile device using Diverlog software.

**NOTE:** When Bluetooth is ON the Bluetooth icon will display on the AIR/NX and GAUGE Main screens. Bluetooth is temporarily deactivated when a dive is started. It will return to sniffing mode when the Sage enters Surface Mode.



## 6. SET AUTO DIM

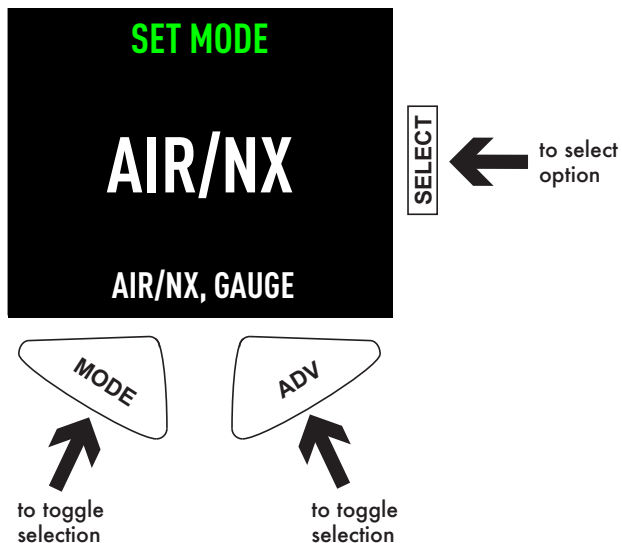
While underwater the Sage screen dims after a set time interval from the last button press. This is done to reduce distractions during the dive and to conserve battery power. The Sage allows you to customize the time interval and degree of dimming. This feature may also be turned off.





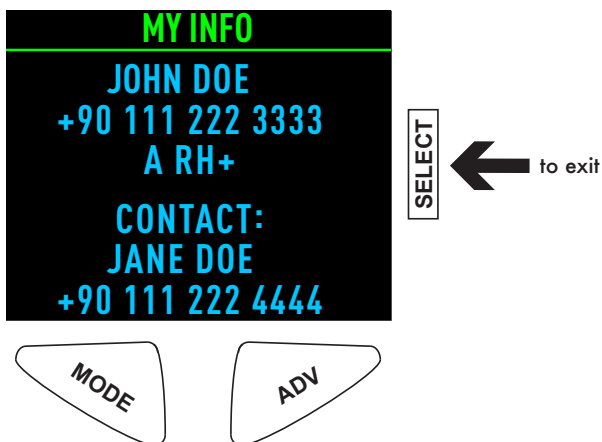
## MODE

This screen allows you to switch between the AIR/NX and GAUGE modes.



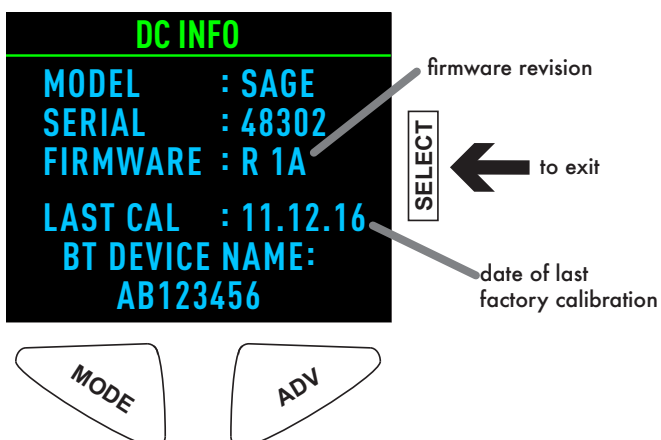
## MY INFO

This screen displays up to 6 lines of personal information. Information must be entered using the PC/Mac/Diverlog interface. The screen shown below will be displayed until information has been uploaded.



## DC (DIVE COMPUTER) INFO

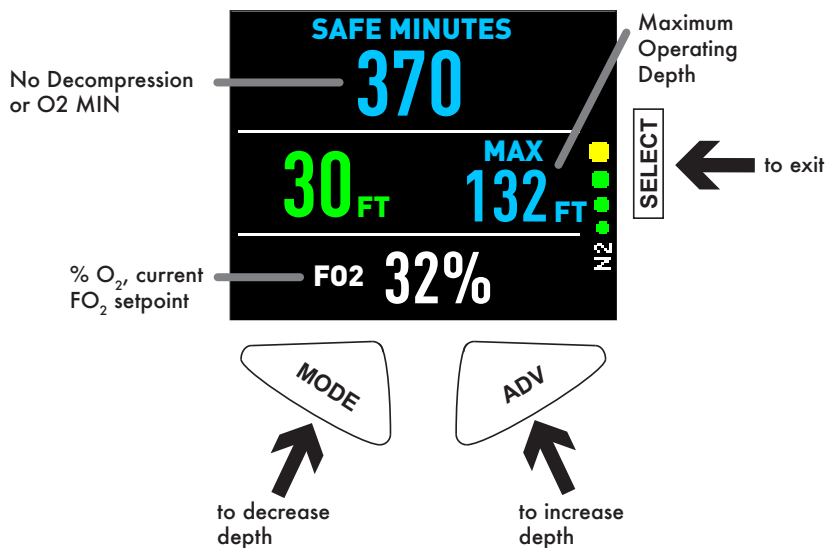
Information displayed on the DC Info screen should be recorded and kept with your sales receipt. It will be required in the event that your Sage requires factory service.



## PLAN

This mode calculates dive depth and time limits. To do so, it accounts for any residual nitrogen, oxygen, surface intervals, the programmed gas mix, and PO<sub>2</sub> alarm setting. Either SAFE MINUTES (No Decompression Time) or SAFE MINUTES O<sub>2</sub> (Oxygen Toxicity Time) limits are displayed, depending on whether nitrogen or oxygen levels will be the limiting factor. The time limit will display as 1-599 minutes, all times greater than 599 display as "599".

**△ NOTE:** Depths exceeding the MOD (Maximum Operating Depth), if nitrox, or that have less than 1 minute allowed dive time will not be displayed.

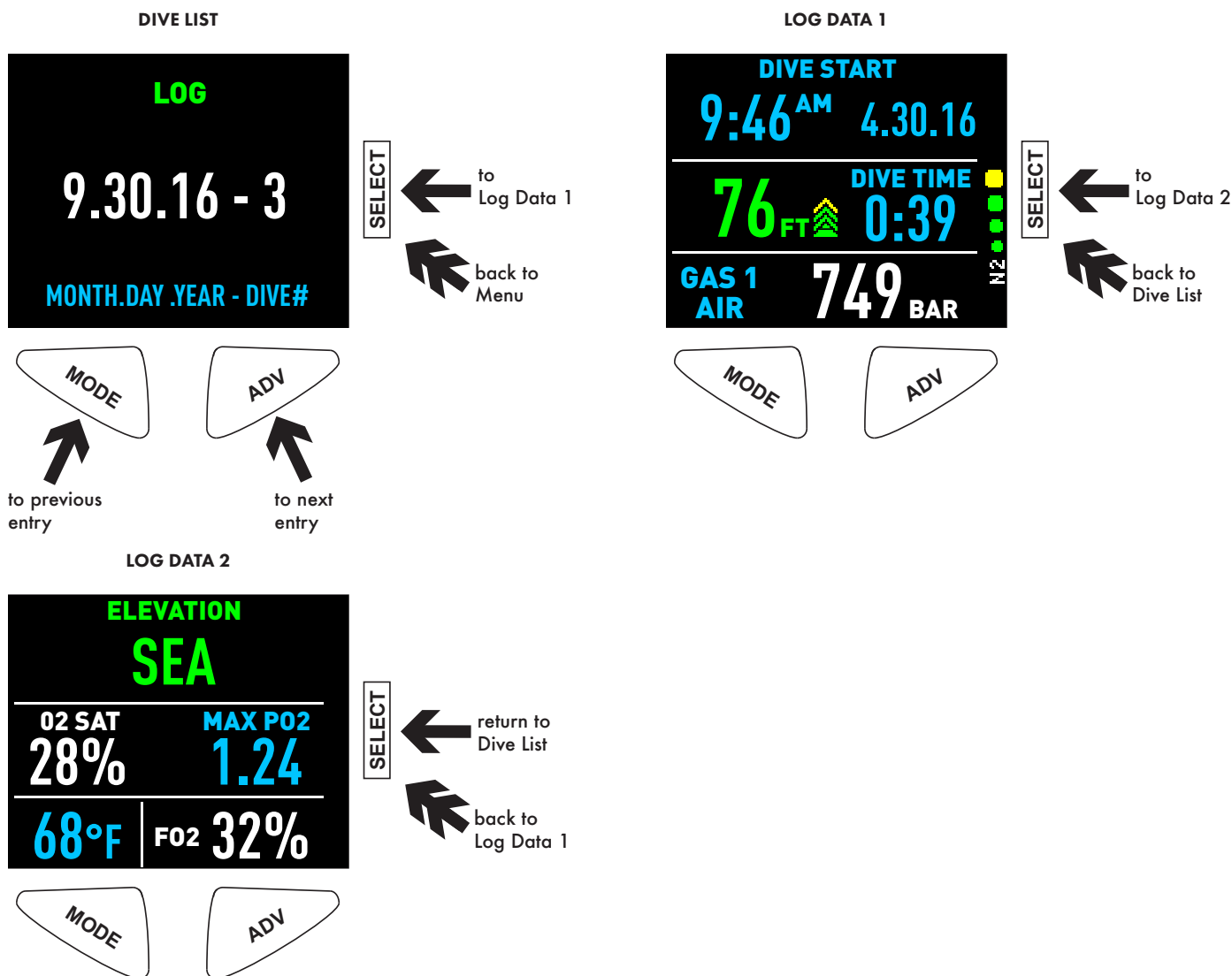


## LOG

The log stores information from AIR/NX and GAUGE mode dives for viewing.

- If no dives are recorded, the message NONE YET will be displayed.
- There is a maximum of 24 entries per activation period.
- After exceeding 24 entries the oldest entries will be deleted to allow space for the new entries.
- Dives are numbered starting with 1 each time AIR/NX (or GAUGE) mode is activated. After 24 hours elapse with no dive, the first dive of the next period of operation is called Dive #1.
- In the event that dive time (DIVE TIME) exceeds 599 min, the data at the 599 interval is recorded in the Log upon surfacing of the unit.
- The log has a capacity of 50 total records.

**NOTE:** New data will automatically overwrite the oldest data in memory when the memory becomes full. If you do not remember to log or download your dives, they will be lost when the memory overwrites. See the PC Download section of this manual for instructions on downloading dives.



## HISTORY

History is a summary of basic data recorded during all AIR/NX and GAUGE dives.

TOTAL DIVES	189
MAX DEPTH	157 <sub>FT</sub>
MAX DIVE TIME	2:32
MAX ELEV	LEV3

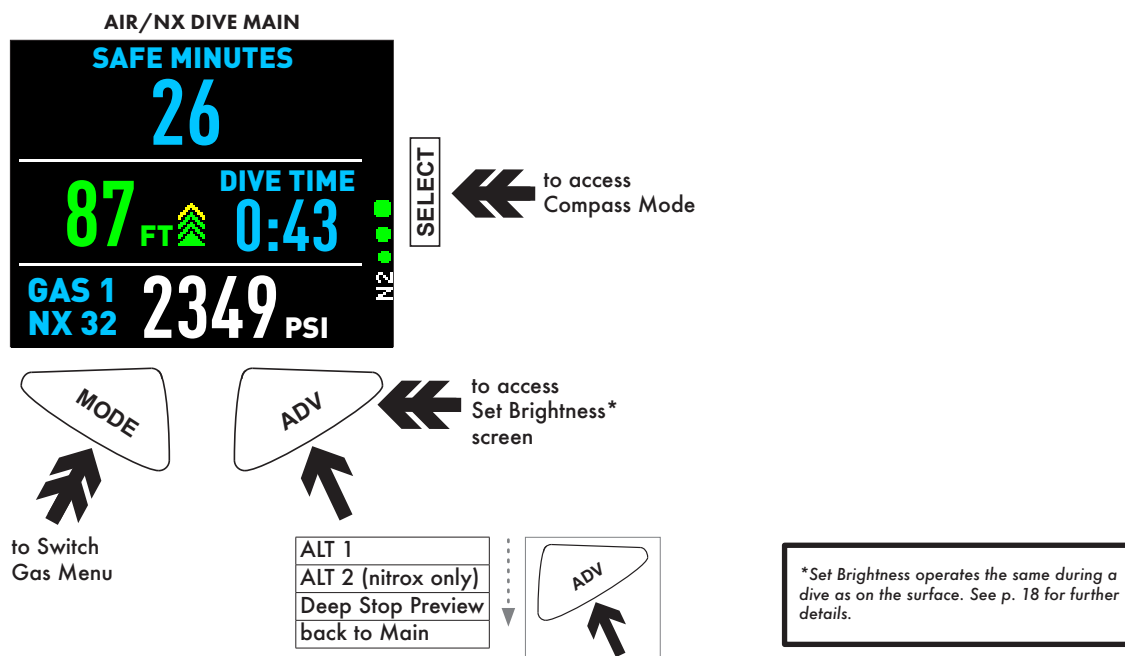
SELECT ← to exit

MODE ADV

# **AIR/NX DIVE OPERATION**

## INITIATING A DIVE

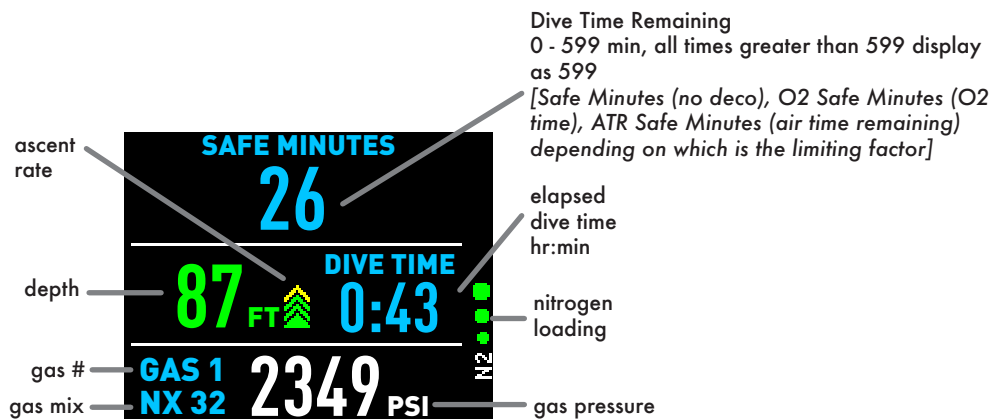
With the Sage in AIR/NX Mode, a dive will commence upon descending to 5 ft (1.5 m) for at least 5 seconds. Below is a diagram to help you navigate AIR/NX Mode functions.



## AIR/NX DIVE MAIN (NO DECOMPRESSION)

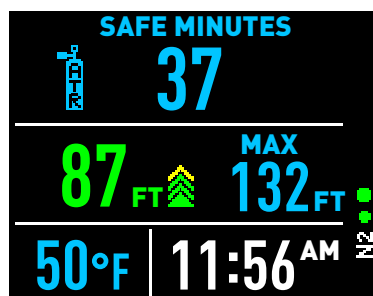
From the Main screen you can see all critical dive parameters. During a dive an audible alarm may sound and the priority of information displayed may change. This is to indicate a safety recommendation, warning, or alarm. The following information in this chapter demonstrates and describes an uneventful dive, in terms of safety. Alarms are described in the Complications section of this chapter.

**⚠ WARNING:** Before diving with the Sage, take time to familiarize yourself with both normal and alarm conditions of operation.



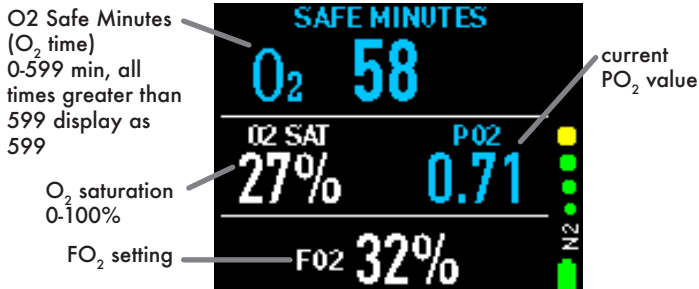
## ALT 1

This screen simply tells you the ATR Safe Minutes (if not already displayed on the Main screen), depth, ascent rate, max depth, ambient temperature, and current time of day.



## ALT 2

The ALT 2 screen displays information pertaining to nitrox; it is bypassed if the Sage is set for air.



## DEEP STOP PREVIEW

If Deep Stop was set to ON in the Utilities Menu, the Deep Stop Preview screen is available after exceeding 80 ft (24 m) of depth. The Deep Stop is always at a depth half that of your maximum depth during the dive. This preview screen keeps track of that depth for you.



## DEEP STOP MAIN

If triggered, the Deep Stop will activate upon ascending to within 10 ft (3 m) below the calculated Deep Stop depth. The stop time will be displayed and count down to 0:00 (min:sec) as long as you stay within 10 ft (3 m) above or below the stop. See Deep Stop in the Dive Features chapter for further details.

△NOTE: The Sage does not penalize for a missed Deep Stop.



## SAFETY STOP MAIN

Upon ascending to 20 ft (6 m) on any No Decompression dive in which Depth exceeded 30 ft (9 m), a Safety Stop screen appears with a count-down timer beginning at 3:00 (min:sec) and counting down to 0:00. See Safety Stop in the Dive Features chapter for further details.

In the event that you descend below 30 ft (9 m) during the countdown, the No Deco Main screen replaces the Safety Stop screen which reappears upon ascent to 20 ft (6 m).

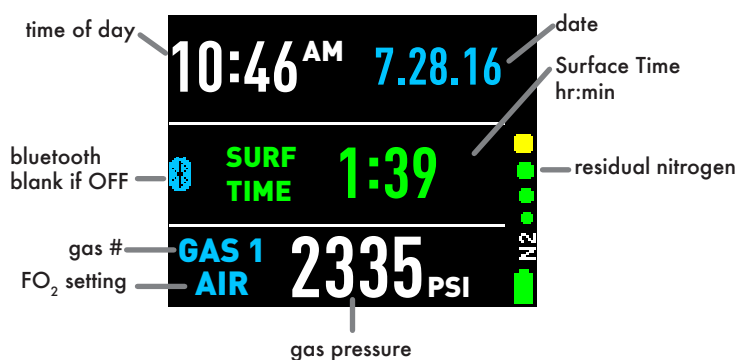
△NOTE: The Sage does not penalize for a missed Safety Stop.



## SURFACING

Upon ascending to 0.9 m (3 ft) the Sage transitions to AIR/NX Surface mode. For the first 10 minutes after a dive the Sage will continue to display the maximum depth and elapsed dive time. Once the surface time reaches 10 minutes the Sage will display the standard AIR/NX Surface screen.

**△ NOTE:** The Sage requires a 10 minute surface interval to record a subsequent dive as a separate dive in the Log. Otherwise, the dives will be combined and recorded as a single dive in the Sage memory.





## GAS SWITCHING

### ⚠️ WARNINGS:

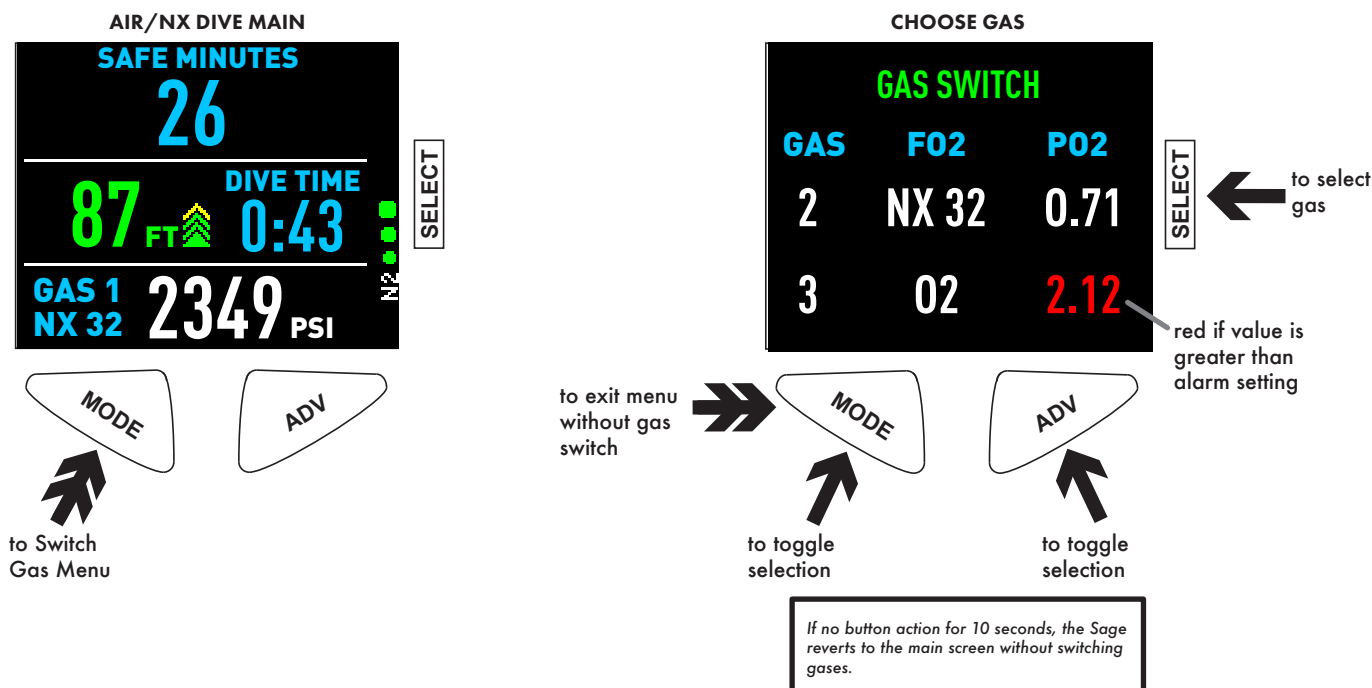
- Historically, many accidents and near misses have occurred by switching to the wrong gas at the wrong depth. **DO NOT** attempt gas switch decompression dives without proper education and training to do so from an internationally recognized training agency.
- Diving deeper than 130 ft (39 m), will greatly increase your risk of decompression sickness.
- Decompression diving is inherently hazardous and greatly increases your risk of decompression sickness, even when performed according to the dive computer's calculations.
- Using a Sage is no guarantee of avoiding decompression sickness.
- The Sage enters Violation Mode when a situation exceeds its capacity to predict an ascent procedure. These dives represent gross excursions into decompression that are beyond the boundaries and spirit of the Sage's design. If you are following these dive profiles, Sherwood advises that you should not use an Sage.
- If you exceed certain limits, the Sage will not be able to help you get safely back to the surface. These situations exceed tested limits and can result in loss of some functions for 24 hours after the dive in which a violation occurred.

### Overview

- All dives begin with GAS 1.
- The GAS defaults to # 1 after 10 minutes on the surface.
- Gas switches can only be made when a AIR/NX Dive Main screen is displayed.
- Gases cannot be switched while on the surface.
- The Gas Switch Menu cannot be accessed during the sounding of alarms.
- If an alarm strikes while in the Gas Switch Menu, the switch operation is terminated (reverting to the AIR/NX Dive Main screen).
- The active gas and gas 3 (if set to OFF) will not display in the Gas Switch Menu. If gas 2 is set OFF, the Gas Switch Menu will not be available.

The current PO<sub>2</sub> value will display in red if the value is greater than the max PO<sub>2</sub> set for the gas.

⚠️ **WARNING:** Switching to gases with a PO<sub>2</sub> above 1.6 has a high risk of oxygen poisoning, convulsions, and drowning. Doing so should always be avoided. It is intended as a last resort option because of the likelihood of injury or drowning. Always dive within your training, experience, and skill level.



## COMPLICATIONS

The preceding information has described standard dive operations. Your new Sage is also designed to help you to the surface in less than ideal situations. The following is a description of these situations. Take some time to familiarize yourself with these operations before diving your Sage.

### DECOMPRESSION

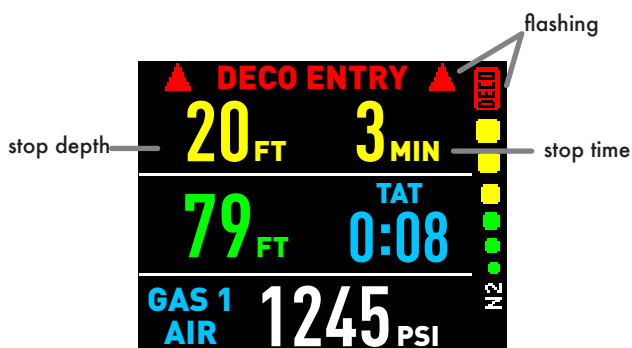
Decompression (deco) mode activates when theoretical No Decompression time (Safe Minutes) and depth limits are exceeded. Upon entry into deco, the audible alarm will sound. The full N2 bar Graph, Up Arrow icons, and DECO ENTRY message will flash until the audible is silenced or after 10 seconds.

- Once within 10 ft (3 m) below the required Stop Depth (stop zone), the DECO STOP message will be displayed solid.

To fulfill your decompression obligation, you should make a safe controlled ascent to a depth slightly deeper than, or equal to, the required stop depth indicated and decompress for the stop time indicated. The amount of decompression credit time that you receive is dependent on Depth, with slightly less credit given the deeper you are below the Stop Depth indicated. You should stay slightly deeper than the required Stop Depth indicated until the next shallower Stop Depth appears. Then you can slowly ascend to that indicated Stop Depth but not shallower.

### DECOMPRESSION ENTRY

Upon entry into decompression (deco) the audible alarm will sound until it is silenced or after 10 seconds. The message DECO ENTRY, up arrows, and full N2 Bar Graph icons will flash. Additionally, the stop depth and stop time values will be displayed. TAS (Total Ascent Time) will replace Dive Time on the Main screen. Dive Time will be viewable from the Deco Alt 1 screen which can be accessed by pressing the ADV button.



### DECOMPRESSION STOP MAIN

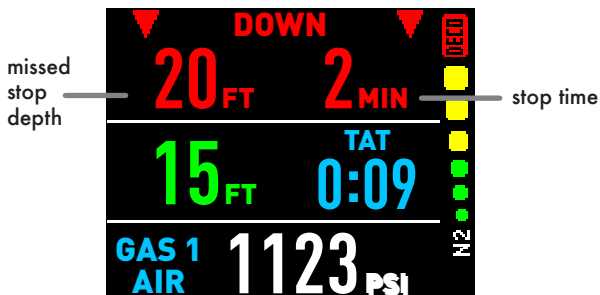
Decompression (deco) Stop Main will display upon ascending to within 3 m (10 ft) below the Deco Stop depth. The message DECO STOP will be displayed solid. While Deco Stop Main is displayed, you may access up to 2 ALT displays by pressing the ADV button to cycle through them. They are similar to the No Deco Main, Dive ALT 1, and Dive ALT 2 displays, respectively.



### CONDITIONAL VIOLATION (CV)

Upon ascent above the required Decompression (deco) Stop depth, operation will enter Conditional Violation during which time no off gassing credit will be given. The Audible alarm will sound. Additionally, the full N2 Bar Graph, down arrows, and DOWN message will flash until the audible alarm is silenced, then the N2 Bar Graph will be solid.

- The down arrows continue to flash until descending below the required Stop Depth (within stop zone), then the DECO STOP graphic will be on solid.
- If you descend deeper than the required Decompression Stop before 5 minutes elapse, Decompression operation will continue with no off gassing credit given for time above the Stop. Instead, for each minute above the Stop 1 ½ minutes of penalty time will be added to the required Stop Time.
- The added penalty (decompression) time will have to be worked off 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. The N2 Bar Graph will recede into the No Decompression zone, and operation will revert to No Decompression mode.

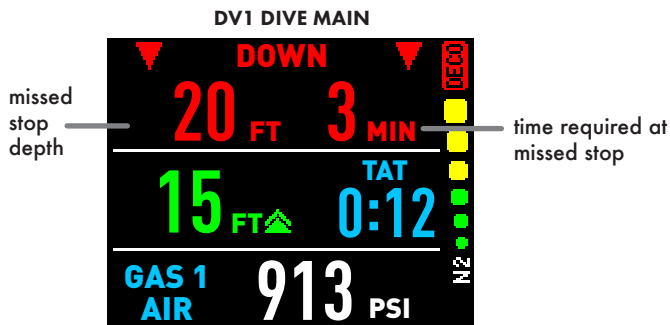


### DELAYED VIOLATION 1 (DV 1)

If you remain shallower than a Deco Stop Depth for more than 5 minutes, operation will enter DV1\* which is a continuation of CV with penalty time still being added. Again, the audible alarm will sound and the full N2 Bar Graph will flash until it is silenced. ALT screens are accessed and appear similar to Deco ALT screens.

\*The difference is that 5 minutes after surfacing from the dive, operation will now enter Violation Gauge Mode.

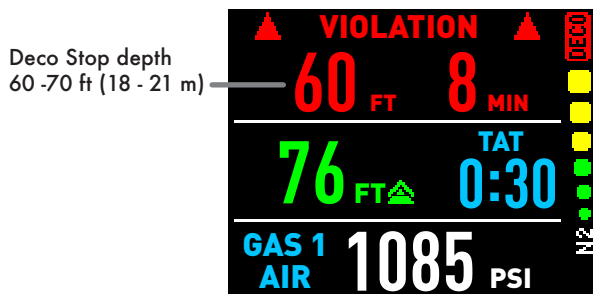
- Down arrows and the DOWN message continues to flash until descending below the required Stop Depth, then the full stop graphic will be on solid.
- If the DV1 status is ignored, the Sage will enter DV1 Surface mode for 5 minutes upon surfacing from the dive. Down arrows and Deco Stop depth/time will flash with the DOWN message. After 5 minutes on the surface in DV1 mode, the unit will enter VGM (Violation Gauge Mode).



### DELAYED VIOLATION 2 (DV 2)

If the calculated Decompression obligation requires a Stop Depth between 18 m (60 ft) and 21 m (70 ft), operation will enter DV2. The audible alarm will sound. Additionally, the full N2 Bar Graph will flash until the audible is silenced.

- Up arrows flash if 3 m (10 ft) deeper than the required Stop Depth.
- Once within 3m (10 ft) of and below the required Stop Depth, the DECO STOP message will be displayed solid.

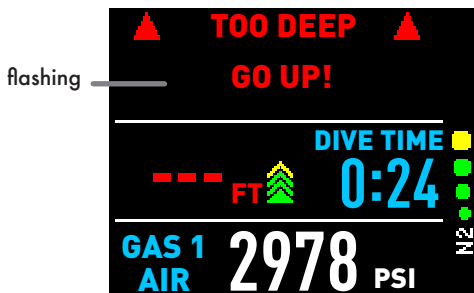


### DELAYED VIOLATION 3 (DV 3)

If you descend deeper than the maximum functional depth\*, the audible alarm will sound. Also, the up arrows, and TOO DEEP GO UP message will flash. Only dashes will display for Current Depth signifying that you are too deep.

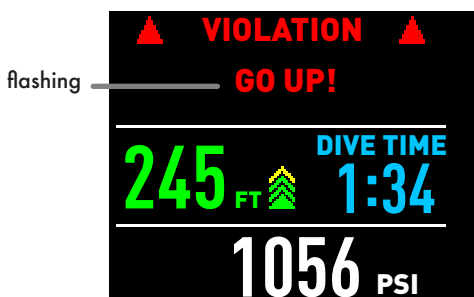
\*The maximum functional depth (AIR/NX or GAUGE = 330 ft / 100 m) is the depth at which the Sage can properly perform calculations or provide accurate display information.

Upon ascending above the maximum functional depth, current depth will be restored. However, the log for that dive will display dashes for max depth.



### VIOLATION GAUGE MODE (VGM) DURING A DIVE

During AIR/NX mode dives, operation will enter VGM when Decompression requires a Stop Depth greater than 70 ft (21 m). Operation would then continue in VGM during the remainder of that dive and for 24 hours after surfacing. VGM turns the Sage into a digital instrument without any decompression or oxygen related calculations or displays. Upon activation of VGM, the audible alarm will sound. The message VIOLATION GO UP with up arrows will flash. After the audible alarm becomes silent (10 seconds), the Safe Minutes (No Decompression) and N2 Bar Graph will not display for the rest of the dive.



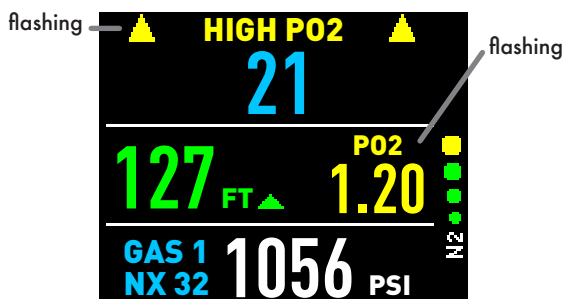
### HIGH PO2

Warning >> at Alarm Set Point value minus .20

Alarm >> at Set Point value, except in Deco then at >1.60 only

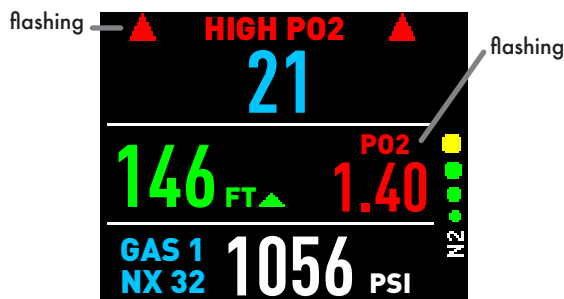
#### Warning

When PO2 (partial pressure of oxygen) increases to the Warning level; the audible alarm sounds and the PO2 value will flash (in place of DIVE TIME) until the audible alarm is silenced.



### Alarm

If PO2 continues to increase and reaches the alarm set point, the audible alarm sounds again. The PO2 value (in place of DIVE TIME), HIGH PO2 message, and up arrows (if not in decompression) will flash continually until PO2 decreases below the alarm set point.



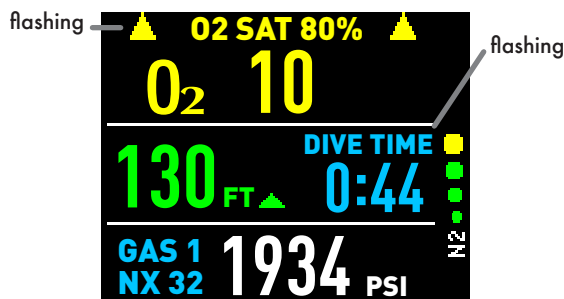
### HIGH O2 SAT (OXYGEN SATURATION)

Warning >> at 80 to 99% (240 OTU)

Alarm >> at 100% (300 OTU)

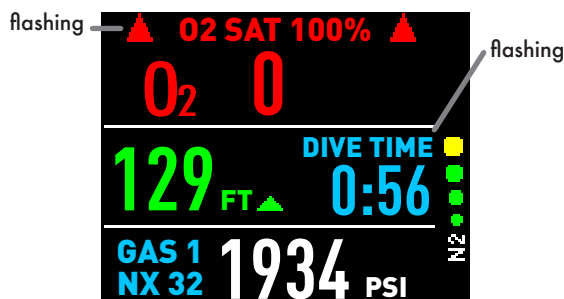
#### Warning

When O2 reaches the Warning Level, the audible alarm sounds, O2 Safe Minutes display, O2 SAT (saturation) value, and up arrows (if not in decompression) will flash until the audible is silenced.



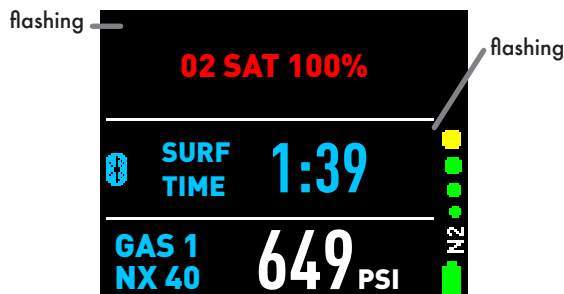
#### Alarm

When O2 reaches the Alarm Level, the audible alarm sounds, O2 Safe Minutes display 0, O2 SAT (saturation) value, and up arrows (if not in decompression) will flash until the audible is silenced.



### Alarm At Surface

If O2 remains at 100% during the first 10 min on the surface, the graphic O2 SAT 100% (red) is to flash. When O2 becomes less than 100% after 10 min, the Surface Main is to be displayed.



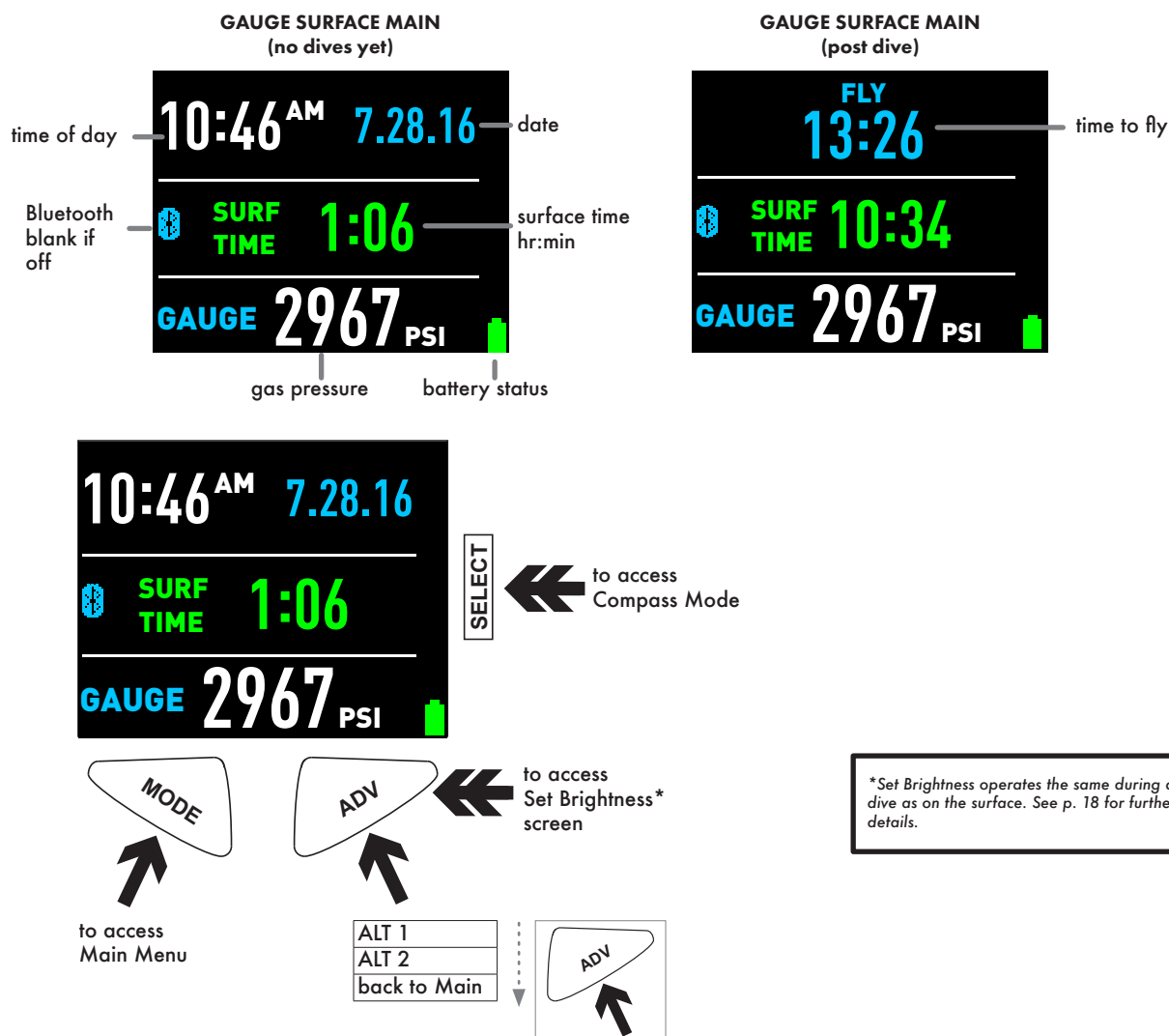
If the diver surfaces due to 100% O2 while in Deco

If O2 remains at 100% during the first 5 min, the graphic O2 SAT 100% (red) is to flash. When O2 becomes less than 100% during 5 min, it is to be replaced with the Delayed Violation 1 Main screen. If O2 is still 100% after 5 min, operation is to revert to VGM (Violation Gauge Mode) for 24 hours, displaying the VGM Surface Main.

# **GAUGE OPERATION MODE**

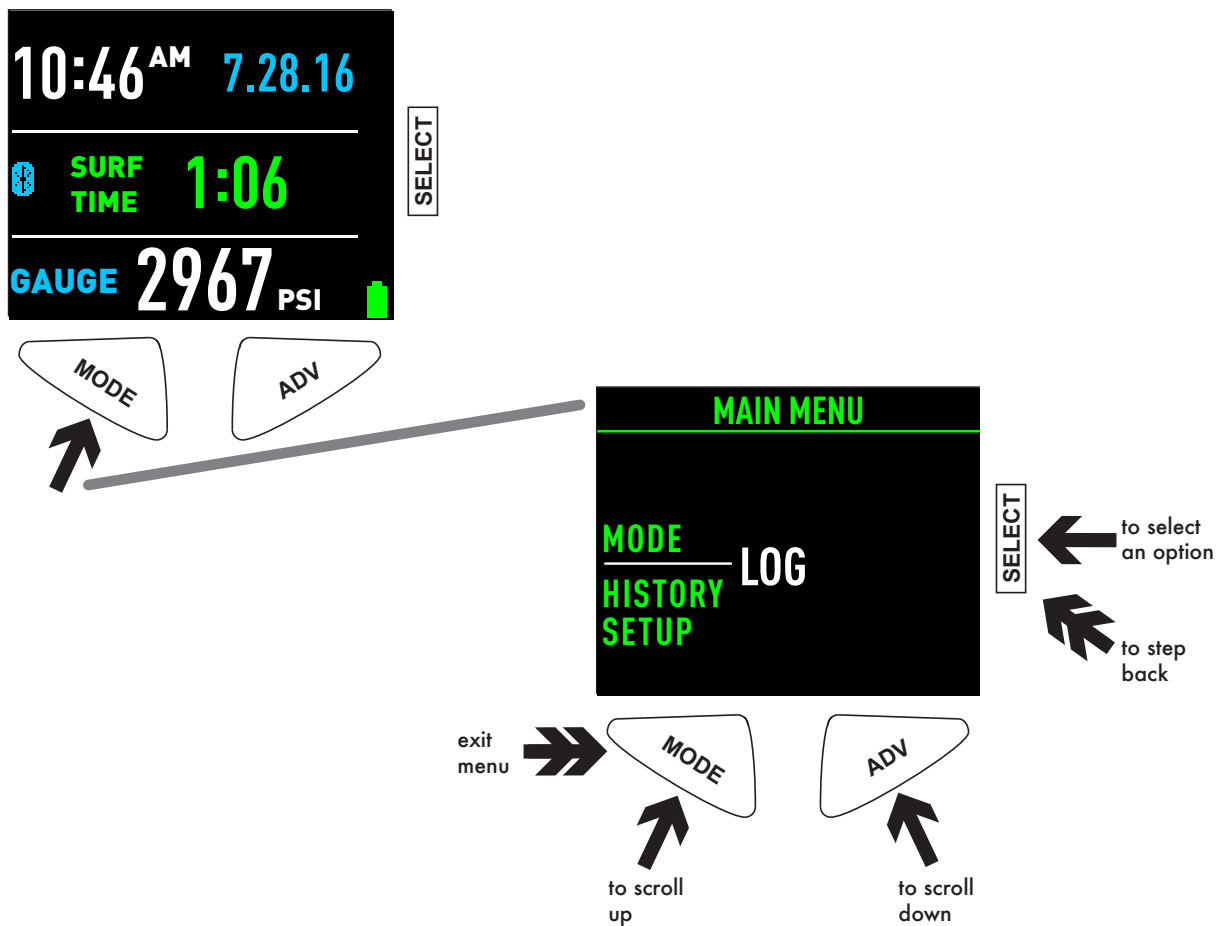
## ON THE SURFACE BEFORE A DIVE

Gauge Surface Main is nearly identical to AIR/NX Mode's Main screen. Unlike AIR/NX Mode, there will be no N2 tissue saturation or gas mix values displayed.



## GAUGE SURFACE MAIN MENU

To access the log or change settings you must navigate through the Gauge Menu. Enter the menu by pressing the MODE button. Press the SELECT button to choose options from the Gauge Menu.



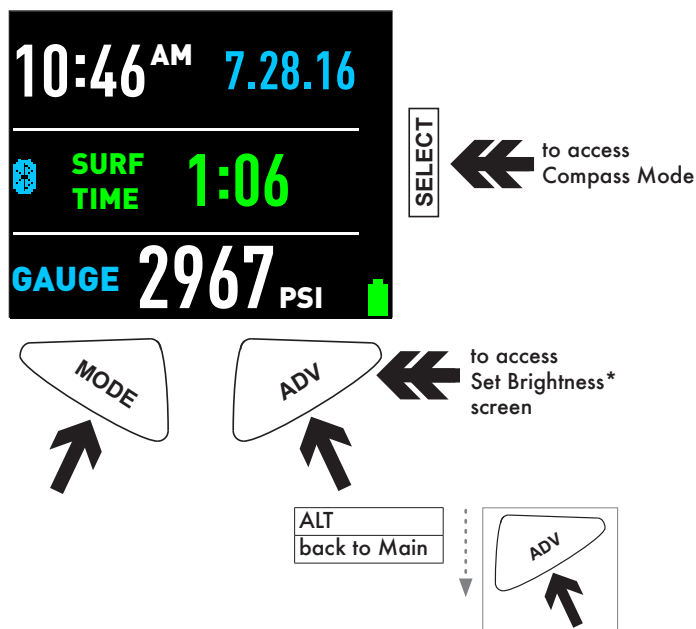
**NOTE:** Gauge Surface ALT screens and Menu options are similar to those described previously for AIR/NX Mode. See the AIR/NX Surface Mode chapter for further details.



## INITIATING A DIVE

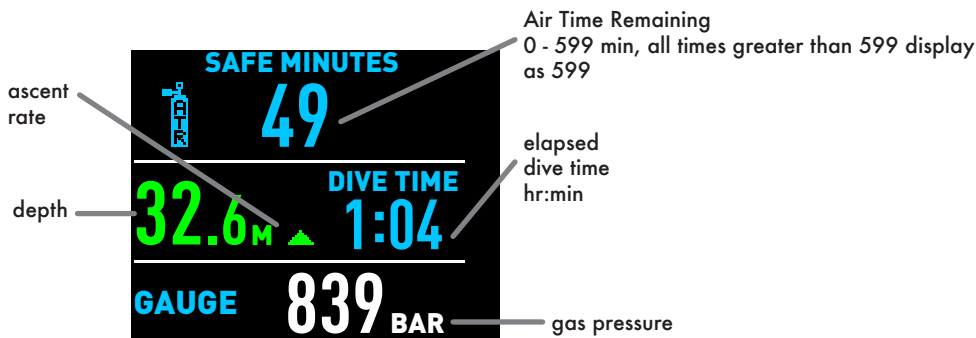
With the Sage in Gauge Mode, a dive will commence upon descending to 5 ft (1.5 m) for longer than 5 seconds. Below is a diagram to help you navigate Gauge Dive Mode functions. The dive will end and revert to Surface Mode upon ascent to 3 ft (0.9 m) of depth for at least 1 second.

**NOTE:** Once a dive is made in Gauge Mode, you must wait 24 contiguous hours after surfacing before the Sage resets and can operate as an Air or Nitrox dive computer in AIR/NX Mode.



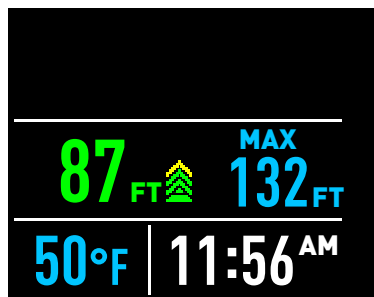
## GAUGE DIVE MAIN

The Gauge Dive Main provides basic information including ascent rate, depth, run time, dive time, gas pressure, ATR (Air Time Remaining) Safe Minutes.



## GAUGE DIVE ALT

This screen simply tells you the depth, max depth, ambient temperature, and current time of day.



### DELAYED VIOLATION 3 (DV3)

If you descend deeper than the maximum functional depth\*, the audible alarm will sound. At the same time, the TOO DEEP GO UP message with up arrows will flash and depth will only indicate dashes signifying that you are too deep. The max depth on the Alt screen will also be represented by dashes.

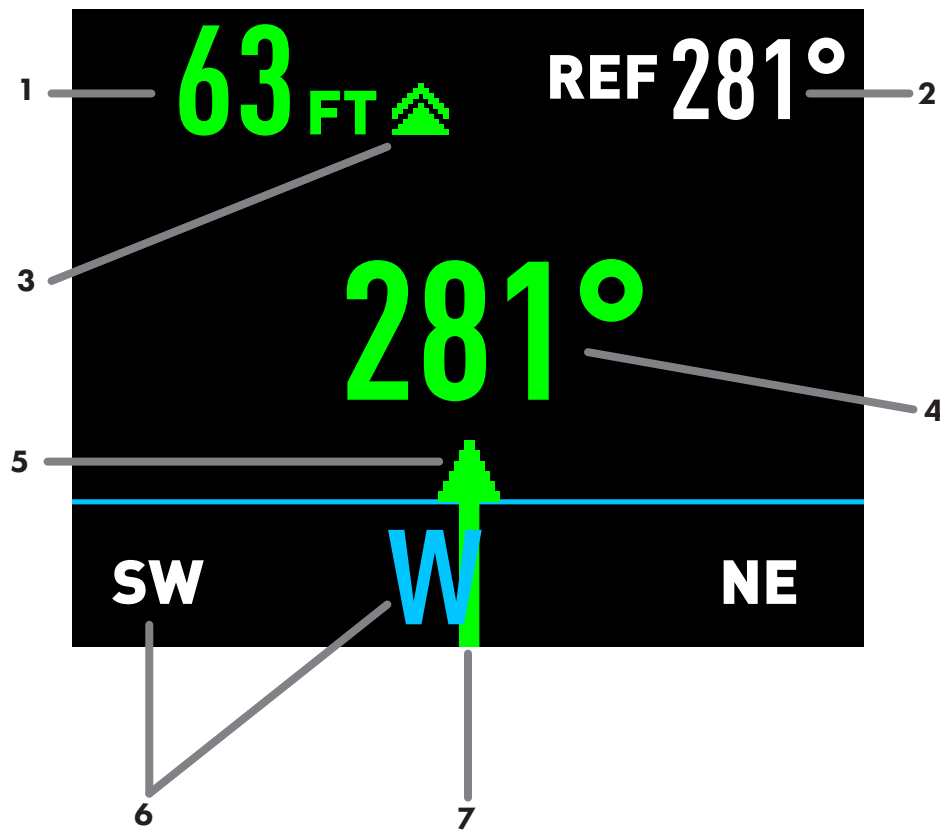
*\*The maximum functional depth (Dive/Gauge= 330 ft/100 m) is the depth at which the Sage can properly perform calculations or provide accurate display information.*

Upon ascending above the maximum functional depth, current depth will be restored. However, max depth on the Alt screen will continue to be displayed as dashes for the remainder of that dive. The Log for that dive will also display dashes for max depth.



# COMPASS MODE

## COMPASS DISPLAY ICONS



1	DEPTH OR SURFACE TIME
2	REFERENCE OR REVERSE HEADING
3	ASCENT RATE
4	HEADING
5	HEADING MARKER
6	CARDINAL & INTERCARDINAL POINTS
7	DIVER'S DIRECTION (LUBBER LINE)

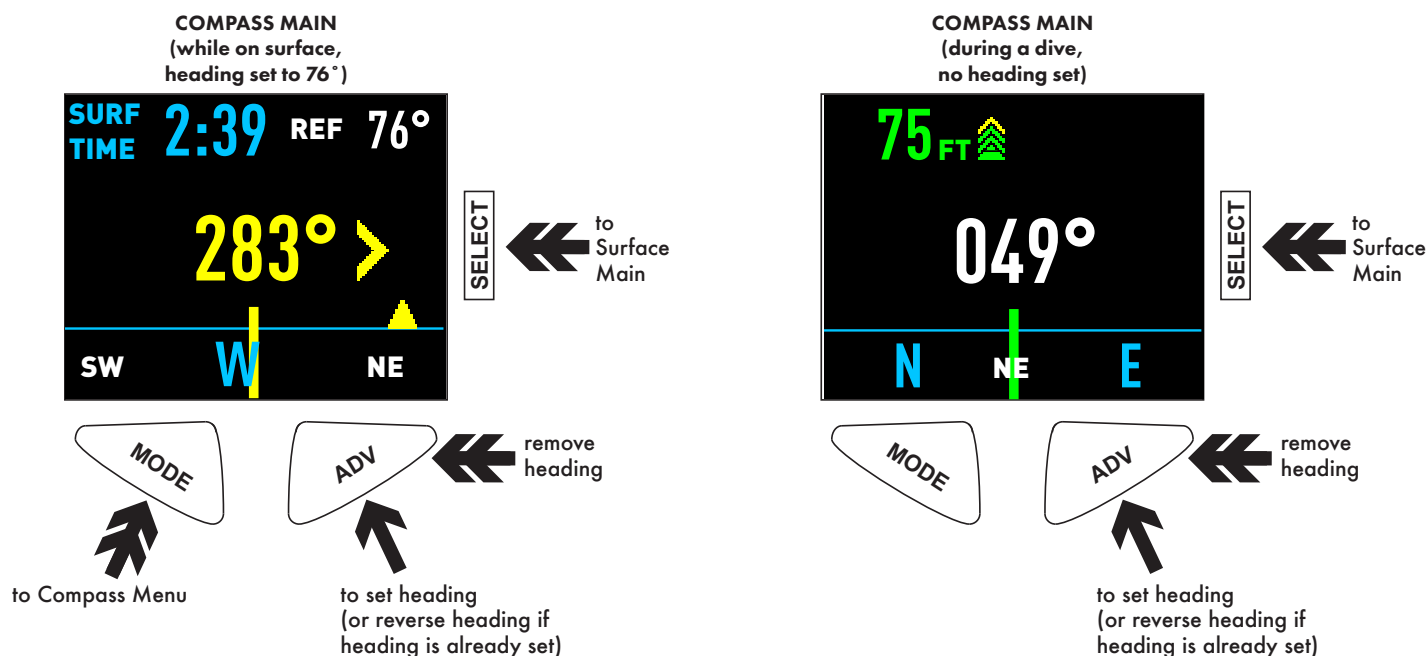
## OVERVIEW

The Sage is equipped with an advanced 3D digital compass. Compass Mode can be activated while in AIR/NX or GAUGE operation modes by holding the SELECT button for at least 2 seconds.

- The Sage reverts back to the previous operation mode after 1 minute unless the Compass Mode is reset by pressing any of the buttons. See the Timeout section at the end of this chapter for further details.
- When no heading is set, the heading degrees are in white and the diver's direction (lubber line) is green.
- Once a reference or reverse heading is set, the heading degrees, heading marker, and diver's direction (lubber line) are green when on heading and amber when off heading.

**NOTE:** Similar to an analog compass, magnetic and ferrous metals can cause erratic and erroneous readings.

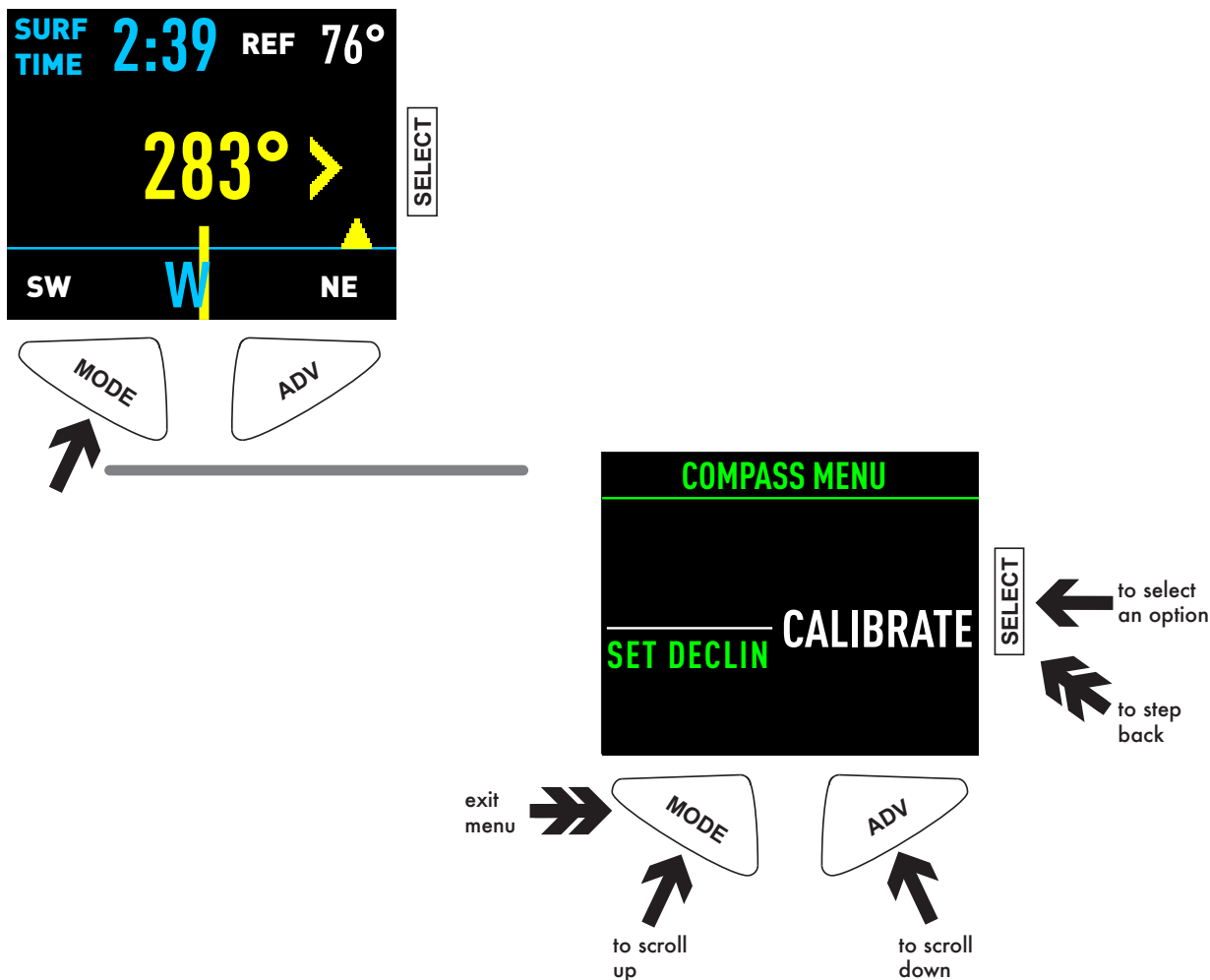
**WARNING:** You must become thoroughly familiar with setup and operation of the Sage Digital Compass before using it as your primary device for navigation. Failure to do so could result in serious errors relating to activities involving navigation.



## COMPASS MENU

The Compass Menu allows you to adjust compass accuracy. The different selections will be described in the order they appear in the menu.

**NOTE:** The Compass Menu can only be accessed while on the surface. During a dive the Sage will use the last saved settings when accessing the Compass Mode.



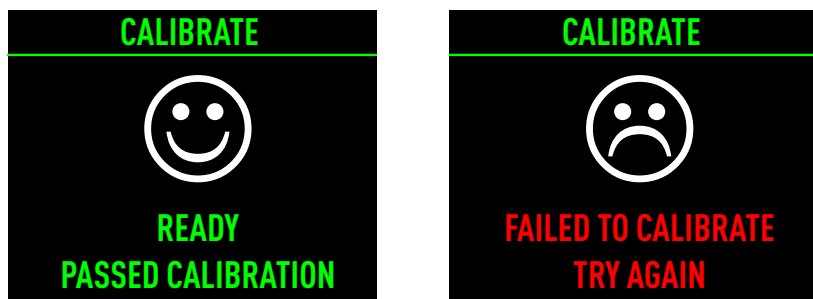
## CALIBRATE

You may need to calibrate the compass from time to time to compensate for any magnetic interference (new batteries, new dive location, or other surrounding changes). Sometimes the Sage will prompt for a calibration, after a battery change for example. The Calibrate selection in the Compass Menu allows you to manually initiate a calibration.

To calibrate the Sage, follow the onscreen prompts. Rotate and turn the Sage over in as many different directions as possible until the unit beeps.

**ROTATE AND TURN OVER  
IN MULTIPLE DIRECTIONS  
UNTIL BEEP**

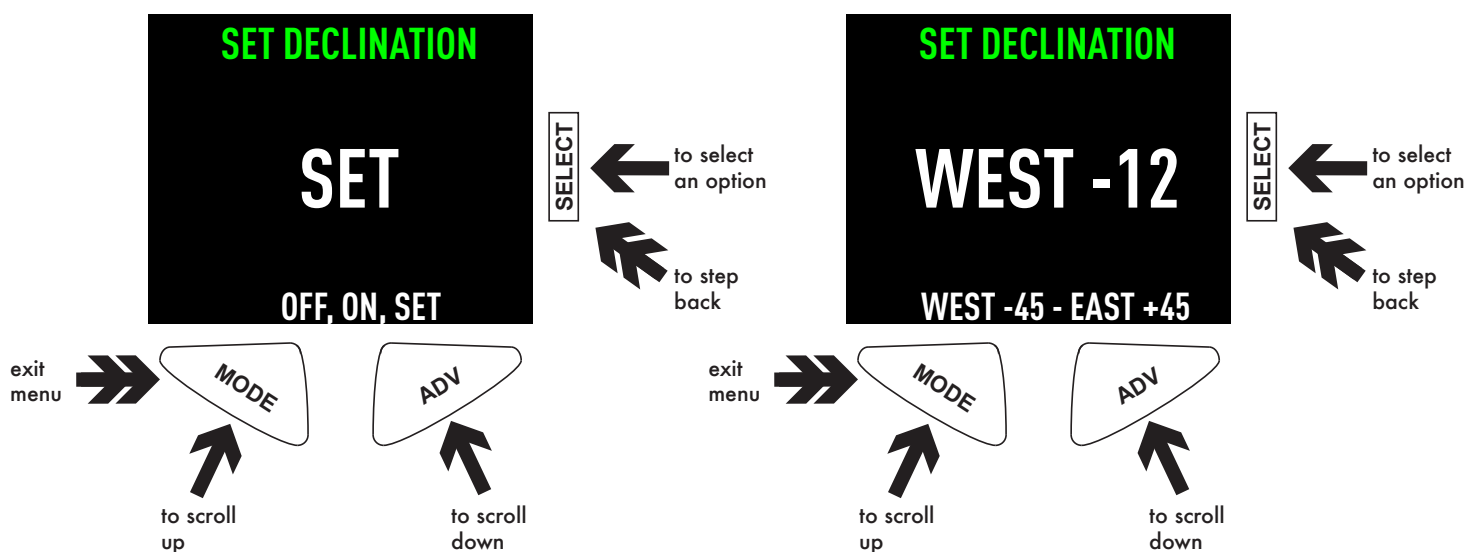
The message READY PASSED CALIBRATION or FAILED TO CALIBRATE TRY AGAIN will then appear.



#### SET DECLINATION

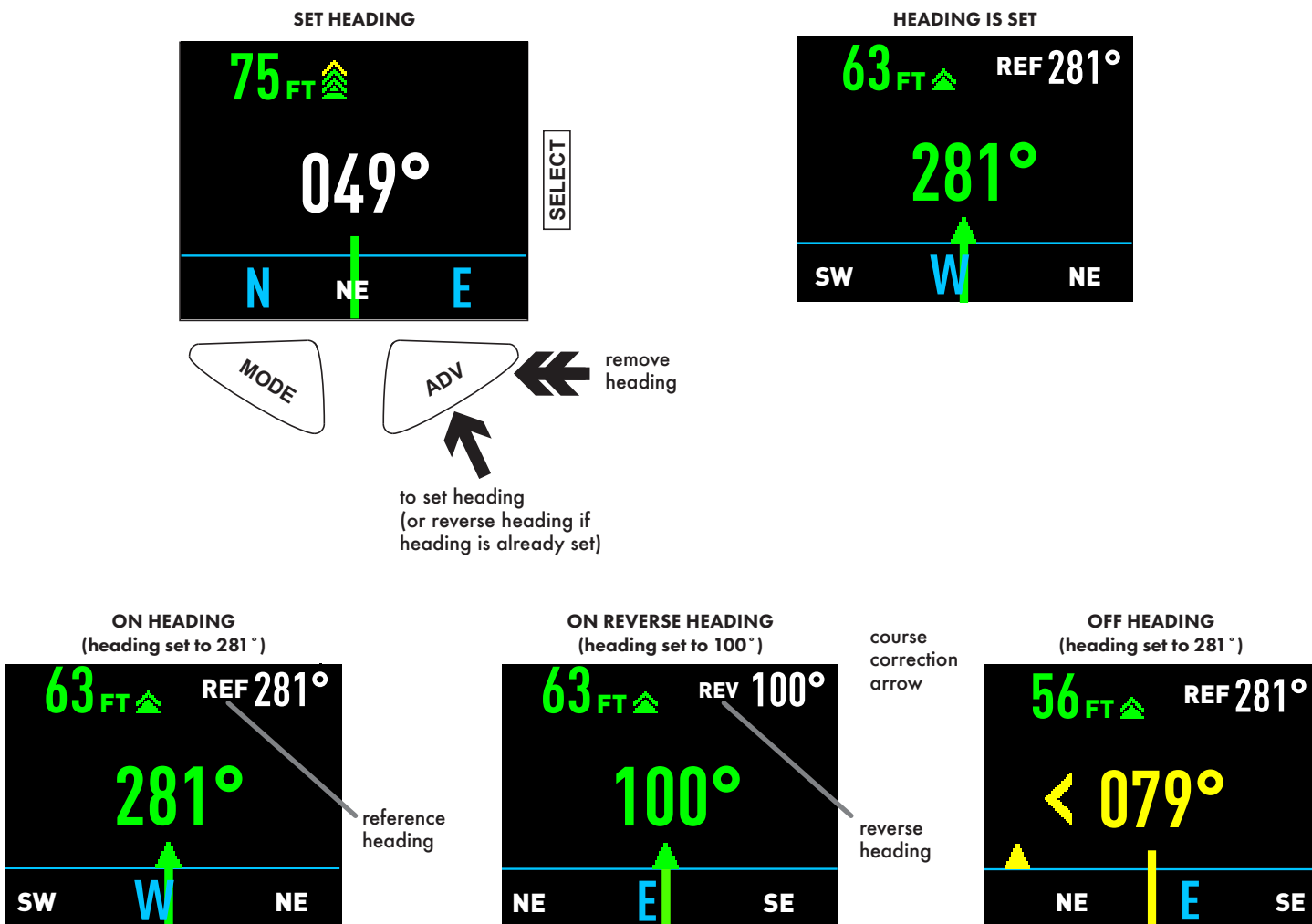
Magnetic declination or variation measures the angle between the Earth's magnetic north and true north. The declination value for any region can be found on current geographical charts. By correcting for declination, you can achieve a more accurate compass reading.

△NOTE: Magnetic north changes over time; so use only current geographical charts to obtain the declination value for any geographical region.



## SET HEADING

Pressing the Advance button while on the Compass Main screen will set a heading. The message HEADING SET is confirmation of your heading being set. The heading is then represented by a green marker. Pressing the Advance button a second time will set the reverse (reciprical) heading. The (reverse) heading is also represented by a green marker. The heading marker will appear amber when your direction drifts from either a heading or reverse heading. An amber arrow will also point in the direction you should turn to correct your course. The heading can be removed at anytime by holding the Advance button for at least 2 seconds.



## ALARMS

When most alarms are triggered, operation in Compass Mode will be terminated and the Dive Main screen will be displayed describing the alarm condition. Compass Mode can then be reentered by holding SELECT for 2 sec.



# REFERENCE

## UPLOADING/DOWNLOADING

As previously described (page 34), the Sage can be paired using the Bluetooth® feature. This requires a PC, Mac, or mobile device running Diverlog software and equipped with Bluetooth® functionality. If your personal computer is not equipped with internal Bluetooth® hardware, a Bluetooth® dongle can be purchased separately from a computer store.

Alternately, The Sage is configured with a 4 pin data connection port located on the back of the case. It can be used with the included adapter clip to connect the Sage with a PC or Mac using a USB cable. Connect the adapter clip to the Sage. When connecting the adapter clip to the Sage, ensure that the 4 ports on the clip are properly fitted over the 4 pins on the Sage. Then connect the USB interface cable to the adapter. The Sage and USB cable assembly can now be connected to a PC or Mac running Diverlog software.

**NOTE:** If a USB cable is connected to the Sage, Bluetooth® connection will be blocked or disabled. Though any active downloads, uploads, or firmware updates using Bluetooth® will be allowed to finish first.

DATA PORT



USB ADAPTER



ADAPTER INSTALLED



## CARE AND CLEANING

Protect your Sage from shock, excessive temperatures, exposure to chemicals, and tampering. Protect the lens against scratches with the stick on Sage lens protector. Small scratches will naturally disappear underwater.

- Soak and rinse the Sage in fresh water at the end of each day of diving, and check to ensure that the areas around the PC interface data port, and buttons are free of debris or obstructions.
- To dissolve salt crystals, use lukewarm water or a slightly acidic bath (50% white vinegar/50% fresh water). After removal from the bath, place the Sage under gently running fresh water. Towel dry before storing.
- Keep your Sage cool, dry, and protected during transport.



## INSPECTIONS AND SERVICE

Your Sage should be inspected annually by an Authorized Sherwood 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).

Sherwood recommends that you continue to have an 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.

### To Obtain Service:

Take your Sage system to an Authorized Sherwood Dealer.

## ALTITUDE SENSING AND ADJUSTMENT

Prior to the first dive of a series of repetitive dives, Altitude (i.e., ambient pressure) is measured upon activation and every 15 minutes until a dive is made or operation reverts to Watch Mode.

- While it is operating in Surface Mode after a dive, measurements are taken every 15 minutes during the 24 hour period after surfacing.
- Measurements are only taken when the unit is dry.
- Two readings are taken, the second reading 5 seconds after the first. The readings must be within 1 foot (30 cm) of each other to record that ambient pressure as the current altitude.
- No adjustments are made during any time that the wet contacts are bridged.

When diving in high altitude waters from 3,001 to 14,000 feet (916 to 4,270 meters), the Sage automatically adjusts to these conditions providing corrected depth, and reduced No Decompression and O2 Times at intervals of 1,000 feet (305 meters).

At an elevation of 3,001 feet (916 meters), Depth calibration automatically changes from feet of seawater to feet of fresh water. This is the first adjustment to the algorithm. When the Conservative Factor feature is set to ON, No Decompression Times are calculated based upon the next higher 3,000 feet (915 mete) altitude. All adjustments for altitudes greater than 11,000 feet (3,355 meters) are then made to allowable dive times for 14,000 feet (4,270 meters). At Sea Level, calculations are based upon an altitude of 6,000 feet (1828.8 meters).

The Sage will not function as a dive computer above 14,000 feet (4,270 meters).

## 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 (stop ceilings):

- 10, 20, 30, 40, 50, and 60 FT (3, 6, 9, 12, 15, and 18 M)

Altitude Algorithm:

- Based on NOAA tables

Oxygen Exposure Limits:

- Based on NOAA tables

### NUMERIC DISPLAYS:

#### Range:

#### Resolution:

• Time of Day	0:00 to 23:59 hr:min	1 minute
• Temperature	0 to 99°F (-18 to 60°C)	1°
• Surface Interval	0:00 to 23:59 hr:min	1 minute
• Time to Fly	23:50 to 0:00 hr:min*	1 minute
(* starting 10 min after the dive)		
• Time to Desaturate	23:50 max to 0:00 hr:min*	1 minute
(* starting 10 min. after the dive)		
• Dive Number	0 to 24	1
• Depth (Current, Max)	0 to 330 FT (100 M)	1 FT (0.1 M )
• Gas 1-3 FO2 Set Point	Air, 21 to 99 %, O2 (100%)	1 %
• PO2 Value	0.00 to 5.00 ATA	.01 ATA
• Safe Minutes	0 to 599 min	1 minute
• Deep Stop Time	2:00 to 0:00 min:sec	1 second
• Safety Stop Time	3:00 to 0:00 min:sec	1 second
• Deco Stop Time	0:00 to 9:59 hr:min	1 minute
• Elapsed Dive Time	0:00 to 9:59 hr:min	1 minute
• Tank Pressure	0 to 5000 PSI (345 BAR)	5 PSI (1 BAR)
• Depth Out of Range	=> 330 FT (99.9 M)	
• Violation Countdown	23:50 to 0:00 hr:min (after surfacing)	

### BAR GRAPHS

#### Nitrogen Bar Graph:

##### segments

- No Deco Normal zone 3
- No Deco Caution zone 3
- Deco Warning zone 1

#### Ascent Rate Indicator:

	<u>segments</u>	<u>FPM</u>	<u>MPM</u>
• Normal	0-4	0 - 25	0 - 7.5
• Caution	5	>25 - 30	8 - 9
• Too Fast (flashing)	6 (all)	> 30	> 9

## SPECIFICATIONS (CONTINUED)

### OPERATIONAL PERFORMANCE

<b>Function:</b>	<u>Accuracy:</u>
• Depth	±1% of full scale
• Timers	1 second per day

#### Dive Counter:

- AIR/NX and GAUGE displays Dives #1 to 24.
- Resets to Dive #1, upon diving (after 24 hours with no dives).

#### Dive Log Mode:

- Stores 24 most recent AIR/NX and GAUGE dives in memory for viewing.
- After 24 dives, adds 25th dive in memory and deletes the older dive.

#### Altitude:

- Operational from sea level to 14,000 feet (4,270 meters) elevation
- Measures every 15 minutes while in Surface Modes.
- Does not measure ambient pressure when wet.
- Compensates for Altitudes above sea level beginning at 3,001 feet (916 meters) elevation and every 1,000 feet (305 meters) higher.

#### Conservative Factor:

- Reduces AIR/NX NDLs to those for the Altitude 3,000 feet (915 meters) higher.

#### Power:

- Battery (QTY:1) compatible with lithium (CR123A: Duracel® or Panasonic™) or rechargeable lithium (RCR123A: Nitecore®, Olight™; Delipow®) batteries.
- Shelf life Up to 7 years (when shipped from factory in Deep Sleep mode)

#### Power Saver Mode (surface):

- Activates and turns screen off when 2 minutes elapse on surface with no button operations.
- Resume operation from Power Saver Mode by pressing any button.

#### Battery Indication:

- Green (Good) - Green Icon displays on the Surface Main. No battery icon during the dive.
- Amber (Warning) - Amber Icon solid on the Surface and Dive Main screens. Battery change is recommended. Brightness level will automatically be limited to 60% maximum.
- Red (Alarm) - Red Icon flashing on the Surface and Dive Main screens. If during a dive, the message LOW BATTERY flashes. If on the surface, the message CHANGE BATTERY flashes until the unit shuts off. The battery must be changed before using your Sage

#### Operating Temperature:

- Out of the water - - between 20 °F and 140 °F (-6 and 60 °C).
- In the water - - between 28 °F and 95 °F (-2 and 35 °C).
- At extremely low temperatures, the LCD may become sluggish, but this will not affect it's accuracy.
- If stored or transported at temperatures below freezing, you should warm the unit and its battery with body heat before diving.

#### Storage Temperature:

- Out of the water (in storage case provided - - between 14 °F and 158 °F (-8 and 70 °C).

#### Working Pressure:

- 4000 PSI, 276 BAR

### NO DECOMPRESSION LIMITS AT ALTITUDE (IMPERIAL)

Altitude>	0	1000	2000	3000	4000	5000	6000	7000	8000	9000	10000	11000	12000	13000
Depth														
30	4:20	4:20	3:35	3:21	3:07	2:55	2:45	2:36	2:28	2:21	2:15	2:10	2:04	1:58
40	2:17	2:17	1:53	1:43	1:36	1:30	1:25	1:20	1:16	1:12	1:09	1:06	1:03	1:01
50	1:21	1:21	1:07	1:03	1:00	0:58	0:55	0:52	0:48	0:45	0:43	0:41	0:39	0:37
60	0:57	0:57	0:46	0:43	0:40	0:38	0:36	0:34	0:33	0:31	0:30	0:29	0:28	0:27
70	0:40	0:40	0:33	0:31	0:30	0:28	0:27	0:26	0:24	0:23	0:22	0:20	0:19	0:18
80	0:30	0:30	0:26	0:24	0:23	0:21	0:20	0:19	0:18	0:17	0:16	0:16	0:14	0:13
90	0:24	0:24	0:20	0:19	0:18	0:17	0:16	0:15	0:14	0:13	0:12	0:11	0:10	0:10
100	0:19	0:19	0:16	0:15	0:14	0:13	0:12	0:11	0:10	0:10	0:09	0:09	0:08	0:08
110	0:16	0:16	0:13	0:12	0:11	0:10	0:09	0:09	0:08	0:08	0:08	0:07	0:07	0:07
120	0:13	0:13	0:10	0:09	0:09	0:08	0:08	0:08	0:07	0:07	0:07	0:06	0:06	0:06
130	0:11	0:11	0:09	0:08	0:08	0:07	0:07	0:07	0:06	0:06	0:06	0:06	0:05	0:05
140	0:09	0:09	0:07	0:07	0:07	0:06	0:06	0:06	0:06	0:05	0:05	0:05	0:05	0:05
150	0:08	0:08	0:07	0:06	0:06	0:06	0:05	0:05	0:05	0:05	0:05	0:04	0:04	0:04
160	0:07	0:07	0:06	0:06	0:05	0:05	0:05	0:05	0:05	0:04	0:04	0:04	0:04	0:04
170	0:07	0:07	0:05	0:05	0:05	0:05	0:04	0:04	0:04	0:04	0:04	0:04	0:04	0:03
180	0:06	0:06	0:05	0:05	0:05	0:04	0:04	0:04	0:04	0:04	0:04	0:03	0:03	0:03
190	0:05	0:05	0:05	0:04	0:04	0:04	0:04	0:04	0:04	0:03	0:03	0:03	0:03	0:03

### NO DECOMPRESSION LIMITS AT ALTITUDE (METRIC)

Altitude>	0	305	610	915	1220	1525	1830	2135	2440	2745	3050	3355	3660	3965
Depth														
9	4:43	4:43	3:51	3:37	3:24	3:10	2:58	2:48	2:39	2:31	2:24	2:18	2:12	2:07
12	2:24	2:24	2:03	1:52	1:44	1:37	1:30	1:25	1:21	1:17	1:13	1:10	1:07	1:04
15	1:25	1:25	1:10	1:06	1:03	1:00	0:57	0:55	0:52	0:49	0:46	0:43	0:41	0:39
18	0:59	0:59	0:49	0:45	0:42	0:40	0:38	0:36	0:34	0:32	0:31	0:30	0:29	0:28
21	0:41	0:41	0:34	0:33	0:31	0:29	0:28	0:27	0:26	0:24	0:23	0:21	0:20	0:19
24	0:32	0:32	0:27	0:26	0:24	0:22	0:21	0:20	0:19	0:18	0:17	0:16	0:15	0:14
27	0:25	0:25	0:21	0:19	0:18	0:17	0:16	0:16	0:14	0:13	0:12	0:12	0:11	0:10
30	0:20	0:20	0:17	0:16	0:15	0:13	0:12	0:12	0:11	0:10	0:10	0:09	0:09	0:08
33	0:17	0:17	0:13	0:12	0:11	0:11	0:10	0:09	0:09	0:08	0:08	0:08	0:07	0:07
36	0:14	0:14	0:11	0:10	0:09	0:09	0:08	0:08	0:07	0:07	0:07	0:06	0:06	0:06
39	0:11	0:11	0:09	0:08	0:08	0:07	0:07	0:07	0:06	0:06	0:06	0:06	0:05	0:05
42	0:09	0:09	0:08	0:07	0:07	0:07	0:06	0:06	0:06	0:05	0:05	0:05	0:05	0:05
45	0:08	0:08	0:07	0:06	0:06	0:06	0:06	0:05	0:05	0:05	0:05	0:05	0:04	0:04
48	0:07	0:07	0:06	0:06	0:06	0:05	0:05	0:05	0:05	0:04	0:04	0:04	0:04	0:04
51	0:06	0:06	0:06	0:05	0:05	0:05	0:05	0:04	0:04	0:04	0:04	0:04	0:04	0:03
54	0:06	0:06	0:05	0:05	0:05	0:04	0:04	0:04	0:04	0:04	0:04	0:03	0:03	0:03
57	0:05	0:05	0:05	0:04	0:04	0:04	0:04	0:04	0:04	0:03	0:03	0:03	0:03	0:03

## INSPECTION / SERVICE RECORD

Sage Serial Number: \_\_\_\_\_

Sage Firmware Rev: \_\_\_\_\_

Date of Purchase: \_\_\_\_\_

Purchased from: \_\_\_\_\_

Below to be filled in by an Authorized Sherwood Dealer:

Date	Service Performed	Dealer/Technician



**WARNING:** If your Sage stops working for any reason while operating as a Dive Computer, 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 exposure 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 Sage, a backup instrument system is highly recommended.

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## NOTES

# **Sage**

## **DIVE COMPUTER**

## **MANUAL**