



SPIRIT

Dive Computer User's Manual

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Oceanpro Spirit Dive Computer User Manual, Rev. 1.00.

TRADEMARK NOTICE

Spirit® is a registered trademark of Oceanpro.

FIRMWARE NOTICE

This manual corresponds to firmware version V01. Feature changes may have been made since this release and might not be documented here. Check the release notes on <https://www.oceanprosports.com> for a complete list of changes since the last release.

FCC COMPLIANCE:

FCC Part 15 testing on the Spirit was performed by HCT America at HCT America, Inc. 840 Yosemite Way Milpitas, CA 955035, USA.

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1. Warnings, Cautions, and Notes:

Please pay special attention to the information provided

	WARNING indicates an imminently hazardous situation, which if not avoided, could result in death or serious injury.
	CAUTION indicates a potentially hazardous situation, which, if not avoided, could result in death or serious injury, or cause damage to the product.
	NOTE is used to emphasize important points, advice, tips, and reminders.

2. About Your Safety

	READ THIS MANUAL! Carefully read this instruction manual in its entirety. Make sure that you fully understand the use, displays and limitations of the Spirit. Any confusion resulting from improper use of this device may cause diver to commit errors that may lead to serious injury or death.
	NEVER FLY WITHIN 24 HOURS OF YOUR LAST DIVE, OR IN ANY CASE WAIT UNTIL THE NO-FLY COUNTER BECOMES --:--. Further, the Divers Alert Network (DAN) advises as follows: - A minimum surface interval of 12 hours would be required to be reasonably assured a diver will remain symptom free upon ascent to altitude in a commercial jetliner (cabin pressure up to an equivalent of 2400 m (8000 ft) altitude). - Divers who plan to make daily, multiple dives for several days, or make dives that require decompression stops, should take special precautions, and wait for an extended interval beyond 12 hours before flying. Further, the Undersea and Hyperbaric Medical Society (UHMS) suggests divers using standard air tanks and exhibiting no symptoms of decompression sickness wait 24 hours after their last dive to fly in an aircraft with an equivalent cabin pressure up to 2400 m [8000 ft]. The only two exceptions to this recommendation are: - If a diver had less than 2 hours total accumulated dive time in the last 48 hours, then a 12-hour surface interval before flying is recommended. - Following any dive that required a decompression stop, flying should be delayed for at least 24 hours, and if possible, for 48 hours.

	If you dive in gauge mode, it is not possible to change between the modes within 24 hours.
	ONLY DIVERS TRAINED IN THE PROPER USE OF OPEN CIRCUIT SCUBA EQUIPMENT SHOULD USE THE SPIRIT! No dive computer can replace the need for proper dive training. Insufficient or improper training may cause divers to commit errors that may lead to serious injury or death.
	NOT FOR PROFESSIONAL USE! The Spirit is intended for recreational use only. The demands of commercial or professional diving often expose the diver to depths and prolonged exposures including multiday exposures that tend to increase the risk of decompression sickness. Therefore, we specifically recommend that the device not be used for commercial or other intense diving activities.
	NOT FOR REBREATHING USE! A rebreather is a breathing apparatus that absorbs the carbon dioxide of a user's exhaled breath to permit the rebreathing (recycling) of the substantially unused oxygen content, and unused inert content when present, of each breath. Spirit is intended for open circuit diving apparatus use only and cannot be used with rebreathers (either closed or semi-closed).
	PERFORM PRECHECKS! Always activate and check the Spirit before diving to ensure that the device has not run out of battery power and all personal adjustments are correct.
	NO PROCEDURE, DIVE COMPUTER OR DIVE TABLE WILL PREVENT THE POSSIBILITY OF DECOMPRESSION SICKNESS (DCS) OR OXYGEN TOXICITY! You must understand and accept that there is no procedure, dive computer or dive table that will totally prevent the possibility of a decompression accident or that oxygen toxicity will not occur, even within accepted limits. For example, the individual physiological make up can vary within an individual from day to day. The dive computer cannot account for these variations. As an added measure of safety, you should consult a physician regarding your fitness before diving with the dive computer. Decompression sickness can cause serious injury or death. DIVING WITH ENRICHED AIR NITROX (EAN) MIXTURES EXPOSES THE USER TO RISKS DIFFERENT FROM THOSE ASSOCIATED WITH DIVING WITH STANDARD AIR. THESE RISKS ARE NOT OBVIOUS AND REQUIRE TRAINING TO UNDERSTAND AND AVOID. RISKS INCLUDE POSSIBLE SERIOUS INJURY OR DEATH. DO NOT ATTEMPT TO DIVE WITH ANY GAS MIX OTHER THAN STANDARD AIR WITHOUT FIRST RECEIVING CERTIFIED TRAINING IN THIS SPECIALTY.
	USE BACK-UP INSTRUMENTS! Make sure that you use back-up instrumentation including a depth gauge, submersible pressure gauge, timer, or watch, and have access to decompression tables whenever diving with the dive computer.



THE SPIRIT SHOULD NEVER BE TRADED OR SHARED BETWEEN USERS WHILE IT IS IN OPERATION! Its information will not apply to someone who has not been wearing it throughout a dive or sequence of repetitive dives. Its dive profiles must match that of the user. If it is left on the surface during any dive, it will give inaccurate information for subsequent dives. No dive computer can take into account dives made without the computer. Thus, any diving activity 24 hours prior to initial use of the computer may give misleading information, which may substantially increase the risk of decompression sickness and must be avoided.



THE SPIRIT IS NOT INTENDED FOR USE AT ALTITUDES GREATER THAN 3300 m [11000 ft]! Diving at altitudes above this limit may significantly increase the risk of decompression sickness (DCS).



ADJUST THE CORRECT CONSERVATISM! Divers should use this option to make the calculations more conservative whenever it is believed that factors which tend to increase the possibility of DCS exist. Failure to select the Conservatism Level correctly, will result in erroneous data and can greatly increase the risk of DCS.



DO NOT EXCEED THE MAXIMUM ASCENT RATE! Rapid ascents increase the risk of injury.



DECOMPRESSION DIVES ARE NOT RECOMMENDED! Decompression diving (dives requiring decompression stops for adequate off gassing) limits the diver's ability to ascend directly to the surface and may substantially increase the risk of decompression sickness. You should ascend and begin decompression immediately when the Spirit shows you that a decompression stop is required! If your computer indicates a mandatory decompression stop ascend, and always stay slightly below the deco depth.



DO NOT DIVE WITH A CYLINDER OF ENRICHED AIR IF YOU HAVE NOT PERSONALLY VERIFIED ITS CONTENTS AND ENTERED THE ANALYSIS VALUE INTO YOUR DIVE COMPUTER! Failure to verify cylinder contents and enter the appropriate O2% into your dive computer will result in incorrect dive planning information.



PPO2 ALARM INDICATES THAT THE MAXIMUM LIMIT IS REACHED; YOU MUST IMMEDIATELY ASCEND UNTIL THE ALARM DISAPPEARS! Failure to take action to reduce oxygen exposure after the WARNING is given can rapidly increase the risk of oxygen toxicity and the risk of injury or death.



THE MOD SHOULD NOT BE EXCEEDED. Disregarding the PPO2 alarm can lead to oxygen poisoning (MOD is the abbreviation for “Maximum Operating Depth”, which is the maximum depth you can dive with the actual gas without exceeding the Max PPO2 set for that gas. For example, if you are breathing Enriched Air Nitrox with 32% Oxygen (EAN32) and Max PPO2 is set to 1.4, the MOD is 111 feet/33 m.



WE STRONGLY RECOMMEND THAT SPORT DIVERS LIMIT THEIR MAXIMUM DEPTH TO 40 m [130 ft] OR TO THE DEPTH CALCULATED BY THE COMPUTER BASED ON THE ENTERED MAXIMUM PPO2 OF 1.4 BAR SETTINGS. Exposure to greater depths increases the risk of oxygen toxicity and decompression sickness.



DO NOT START A DIVE IF THE LOW BATTERY MESSAGE IS DISPLAYED ON THE SCREEN WHEN AT THE SURFACE. The computer may fail to function during the dive, and this could lead to serious injury or death.



**DO NOT USE COMPRESSED AIR TO BLOW WATER OFF THE UNIT.
DO NOT USE SOLVENTS OR OTHER CLEANING FLUIDS THAT MIGHT CAUSE DAMAGE.
DO NOT TEST OR USE THE UNIT IN PRESSURIZED AIR.**



WHEN THE OMITTED DECO STOP ALARMS ARE TRIGGERED, DESATURATION OF THE SIMULATED TISSUES IS HALTED; IT RESUMES WHEN THE DIVER RETURNS TO THE CORRECT DECOMPRESSION STOP DEPTH.



THE SPIRIT FUNCTIONS TO A DEPTH OF 99.9 M/330 FT ONLY.

3. General Information

3.1. Introduction

The Spirit dive computer is designed for use as an auxiliary piece of diving equipment for recreational diving. The Safety section (Section 2) in the start of the manual should be used as a reference for the following sections.



READ THIS MANUAL! Carefully read this instruction manual entirely. Make sure that you fully understand the use, displays and limitations of the Spirit. Any confusion resulting from improper use of this device may cause diver to commit errors that may lead to serious injury or death.

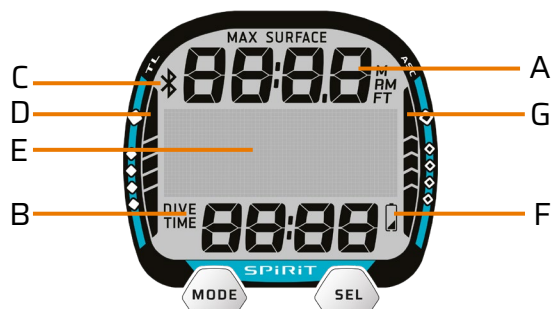


ONLY DIVERS TRAINED IN THE PROPER USE OF SCUBA EQUIPMENT SHOULD USE THE SPIRIT! No dive computer including the Spirit can replace the need for proper dive training. Insufficient or improper training may cause diver to commit errors that may lead to serious injury or death.

3.2. General features

- Segmented LCD display with 66x25 dot matrix area.
- Easy to use two-button interface.
- Maximum operating depth 100 m / 330 ft.
- Computer (with Air, Nitrox (EAN)) and Gauge modes.
- Bühlmann ZHL-16C based decompression model
- O₂ Toxicity (Oxtox) tracking
- No-deco limit (NDL) planner.
- Customizable audible and visual alarms.
- Programmable depth sampling rates.
- Storage of 60 dive logs in dive computer's memory.
- Firmware updates via Wireless Sync.
- Dive log downloading via Wireless Sync using the DiveSync App.
- Three-level conservatism adjustment based on gradient factors (GFs).
- User selectable deep stop and safety stop.
- Automatic compensation for altitude up to 3300 m / 11000 ft elevation.
- Automatic backlight intensity adjustment.
- Wet contact activation.

3.3. Screen information



A- Top segmented area:

Surface time,
Time of the day,
Current depth,
Maximum depth,
MOD (during gas setting and gas switch)

B- Bottom segmented area:

Last dive's dive time,
Desaturation time,
Altitude level,
No Deco Limit (Plan Mode),
O2 Time Limit (Plan Mode),
Elapsed dive time.

C- Wireless Sync: displayed when it is ON.
Flashing if connected. Solid if not connected.

D- Tissue loading bar graph (Ti): as an indication of inert gas loading.

E- Dot matrix area:

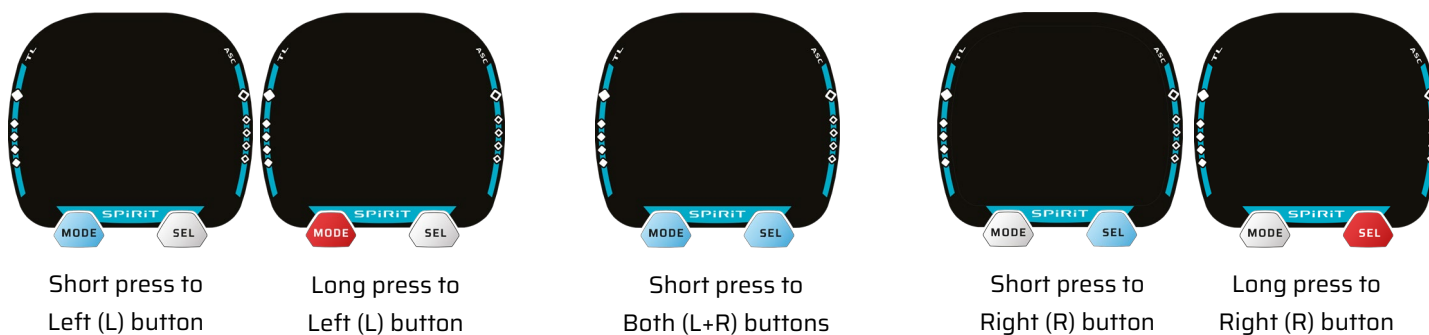
Last dive's max depth,
Current gas number and information,
GAUGE (mode),
Date and temperature,
Current PPO2,
Max PPO2 set and current oxygen toxicity (Oxtox),
MOD (displayed in Plan Mode),
Menu items, Settings and Set points,
Surface time (Logbook Page 1, before the dive),
Dive start time,
Max and min temperature,
Number of dives,
Total dive hours,
Minimum temperature,
Owner info,
No deco time,
O2 Time,
Time to Surface (TTS),
Deep stop / Safety stop / Deco stop,
Chrono,
Warning and alarms.

F- Battery icon: displayed when battery is in warning or alarm level.

G- Ascent Rate bar graph (ASC): Showing the ascent rate graphically.

3.4. Button Operations

The Spirit has two buttons: The Left (L) and Right (R) buttons. The functions of these buttons change depending on the duration of the button press. If a button is pressed for less than 2 seconds, it is a “short press”. The short press is represented by a blue button in this manual. If a button is pressed for more than 2 seconds, it is a “long press”. The long press is represented by a red button. Some operations require pressing both the Left and Right buttons simultaneously, which is shown as L+R.



Left button (L):	Both buttons (L+R):	Right button (R):
<u>Short press:</u> • Open Main Menu • Advance (go down) in Menus • Advance (next depth) in Plan (hold to scroll 8/s) • Change/Increase set points (hold to scroll 8/s) • Go down in logbook dives list (hold to scroll 8/sec) • Acknowledge alarms • Start/Stop Chrono <u>Long press:</u> • Reset Chronometer	<u>Short press:</u> • Back to main screen from anywhere	<u>Short press:</u> • Open and Advance in Alt Displays • Open and Advance in Logbook Pages • Open/Enter to a Menu/Setting/Info Page • Save a flashing set point and back to menu • (or save and flash next set point) <u>Long press:</u> • Back to previous menu/screen (or to Main) • Decrease depth in Plan • Go up in the Log List • Decrease/change when a set point is flashing • Back to previous Alt Display (or to Main) • Activate backlight when on Main

4. Setup your Spirit

4.1. Activation

The Spirit is placed in a Deep Sleep mode prior to being shipped. The intent is to extend the storage life of the power source. To activate the Spirit, keep both buttons pressed down until the screen turns on.

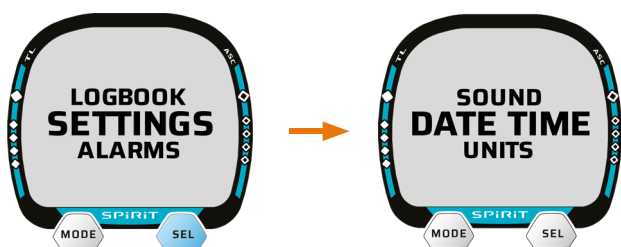


Once the Spirit is activated, Deep Sleep mode is permanently disabled and cannot be reactivated.

4.2. Getting started

The Spirit comes with default settings (Section 8.2) enabled. Before diving, ensure that all settings are set up and personalized to your dive profile.

1. Wake up the device by keeping both left and right buttons pressed until the display turns on.
2. Press L until SETTINGS appears in the middle of the dot matrix area and press R to enter the SETTINGS Menu.

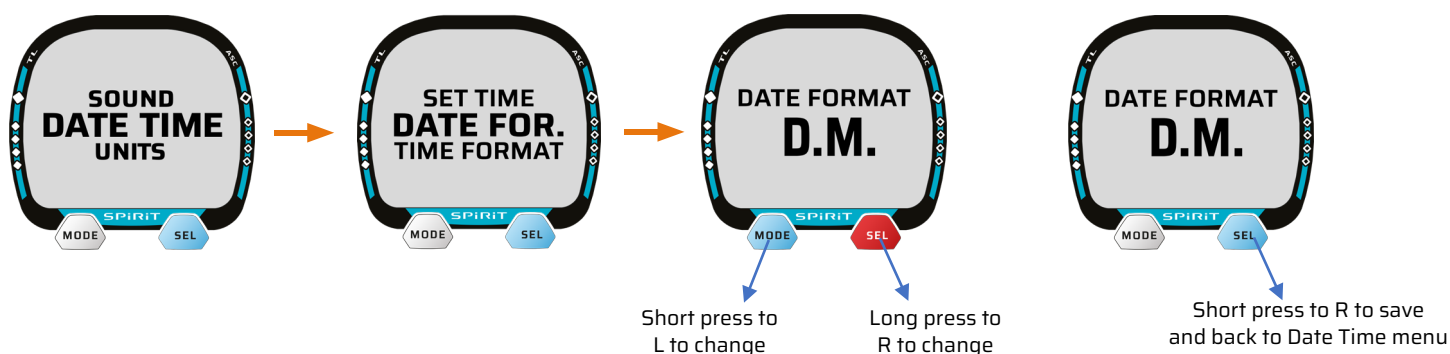


3. Set Date and Time. See 4.2.1.
4. Set Units to Metric or Imperial See 4.2.2.
5. Set Wireless Sync (BT) to ON or OFF. See 4.2.3.
6. Set the duration of the backlight. See 4.2.4.
7. Set Sound. See 4.2.5.

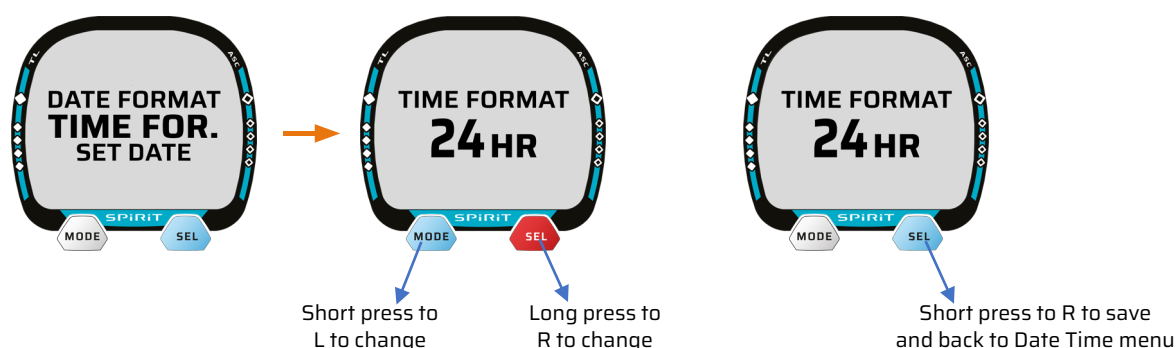
4.2.1. Setting Date and Time

The DATE TIME menu is the first menu item in SETTINGS. When the DATE TIME menu is highlighted, press the R button to enter the menu.

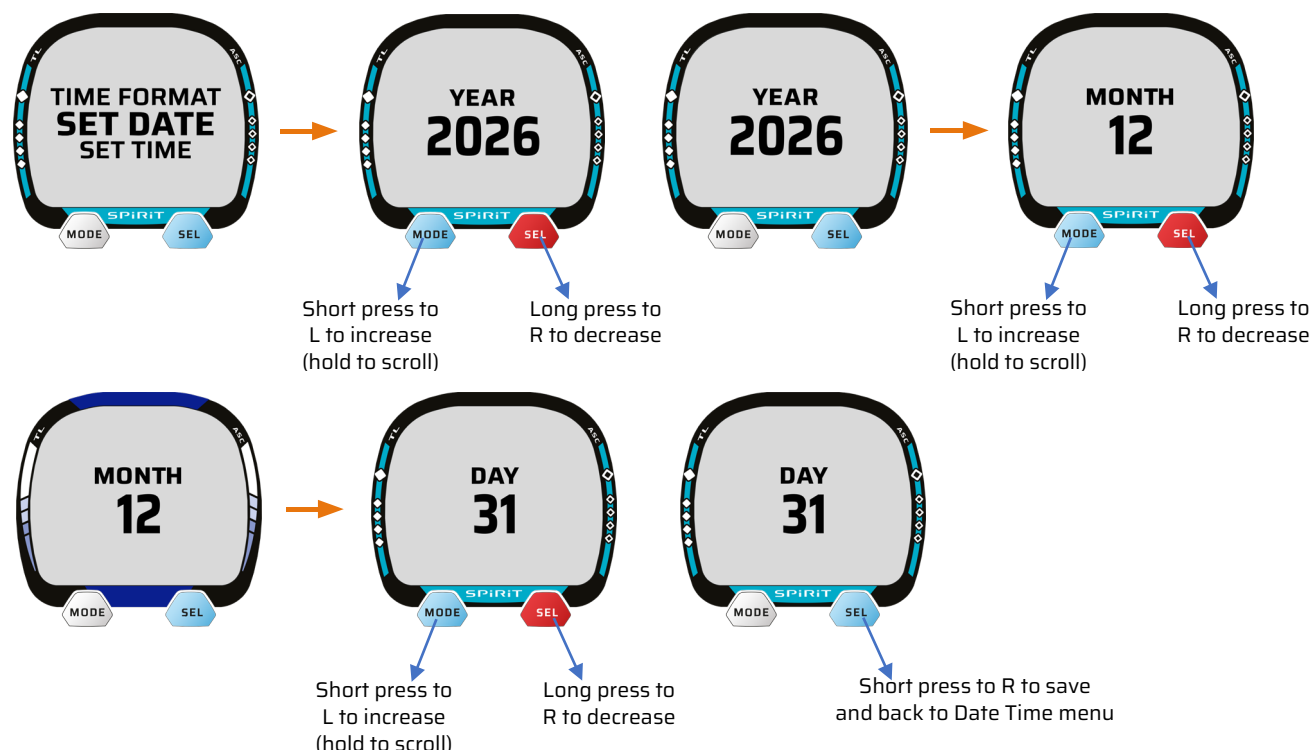
You can set the date format to be D.M. or M.D. If D.M. is selected, the date will be displayed with the Day/Month/Year format. If M.D. is selected, the date will be displayed with the Month/Day/Year format.



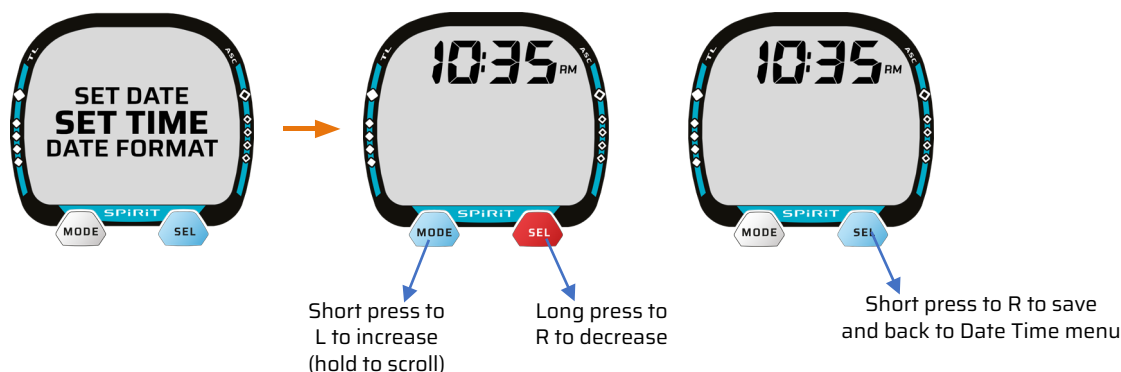
You can set the time format to 24 hours or 12 hours (with AM/PM) format.



To set the date, press R when SET DATE is highlighted. You will first set the year, then the month and then day.



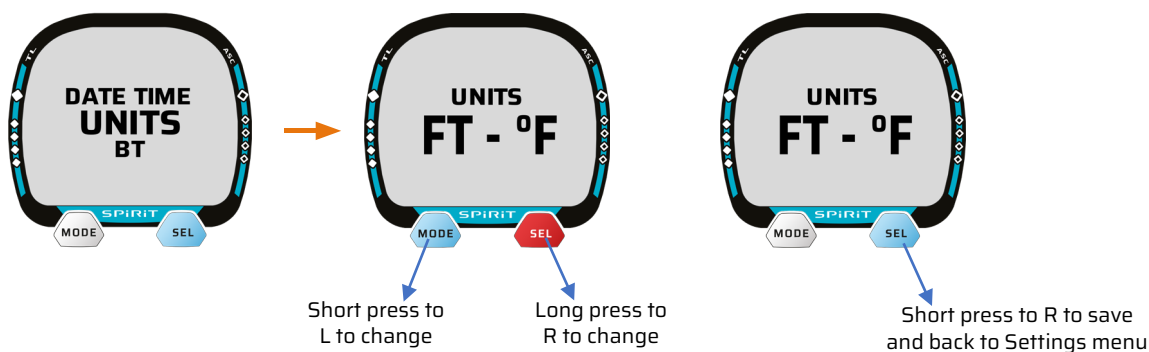
After the day is set and saved, operation will go back to the DATE TIME menu. To set the time, use the L button to set hour, then minute after hour is saved, if time format is set to 24 H, back to DATE TIME menu after minute is saved. If time format is set to 12 H, set AM/PM after minute saved and back to DATE TIME menu after AM/PM is saved.



4.2.2. Setting Units

The Spirit dive computer enables you to use imperial or metric units for monitoring depth and temperature. You can set the units using the SETTINGS menu. Select FT - °F for the depth to be displayed in feet (ft) and temperature in degrees Fahrenheit (°F).

If you set the units to M - °C, depth will be displayed in meters (m) and temperature will be displayed in degrees Celsius (°C).



BE SURE THAT YOU SET THE UNITS CORRECTLY. Confusion in units setting may cause erroneous depth readings by the diver which may cause dive accidents.

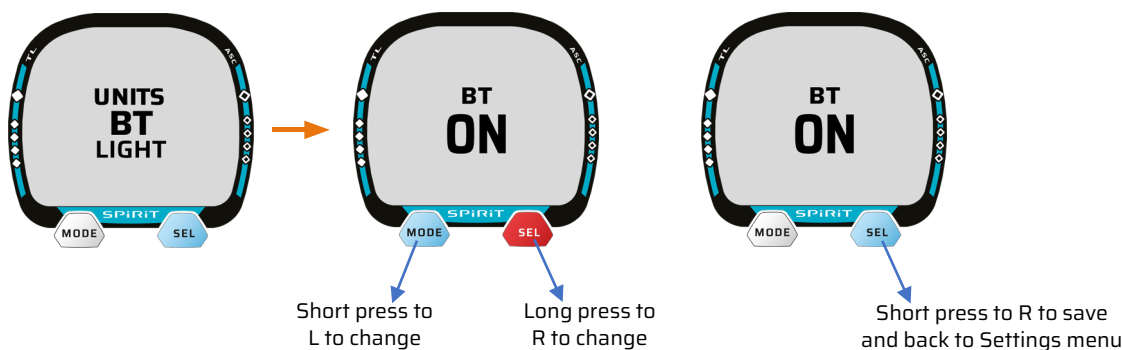


The settings you made in FT - °F units are not affected by the changes made in M - °C units. For example, if you set the depth alarm to 80 feet, then you switch to M - °C units and set the depth alarm to 40 meters, the depth alarm will still be 80 feet when you switch back to FT - °F. Similarly, the settings you made in M - °C units are not affected by the changes made in FT - °F units.

4.2.3. Wireless Sync

The Spirit includes Wireless Sync to connect with the DiveSync App to transfer dive logs to any iOS or Android mobile phone, manage Spirit settings, and update the firmware.

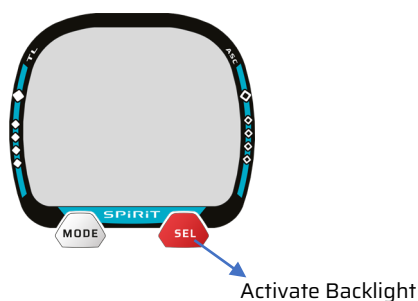
You can activate and deactivate Wireless Sync (BT) using the SETTINGS Menu.



4.2.4. Setting the Duration of the Backlight

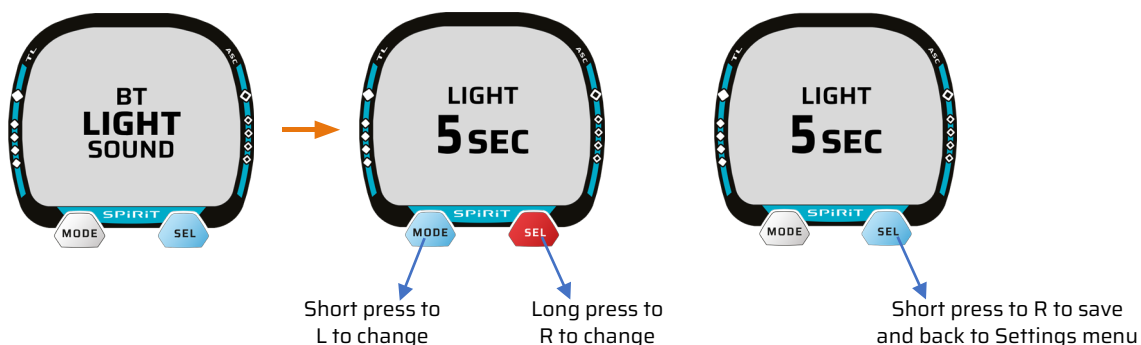
The Spirit is fitted with an ambient light sensor capable of detecting the intensity of ambient light. The Backlight turns on only if the level of light is lower than the default setting of the sensor. When there is sufficient light, the backlight will not turn on.

At the surface or during a dive while the main screen is displayed, a long press of the R button will activate the backlight.



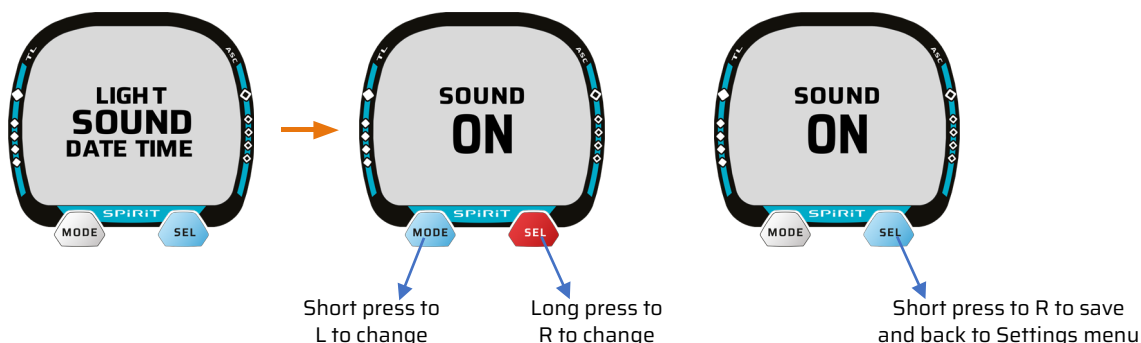
Once the R button is pressed for more than 2 seconds (long press), the backlight will turn on for 5 to 15 seconds (depending on the setting). When the backlight is turned on, subsequent button presses will keep the backlight on. To set the duration of the backlight, go to the SETTINGS menu and select LIGHT. You can set the backlight OFF or set a duration to 5, 10, 15 seconds.

In dark environments, long pressing on any button will turn on the backlight for the duration set.



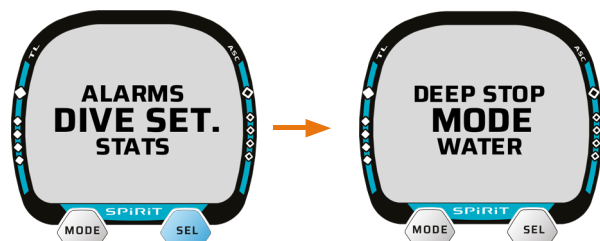
4.2.5. Setting Sound ON or OFF

The Spirit warns the user with audible alarms synchronized with the red LED. You can set the sound to ON or OFF using the SETTINGS menu selecting SOUND.



4.3. Setting Dive Parameters

You can set dive parameters using the DIVE SETTINGS menu. Enter the DIVE SETTINGS menu from the Main menu to set the dive mode, water type, sample rate for dive profile logging, gases to be breathed during dive, conservatism level, safety stop and deep stop.

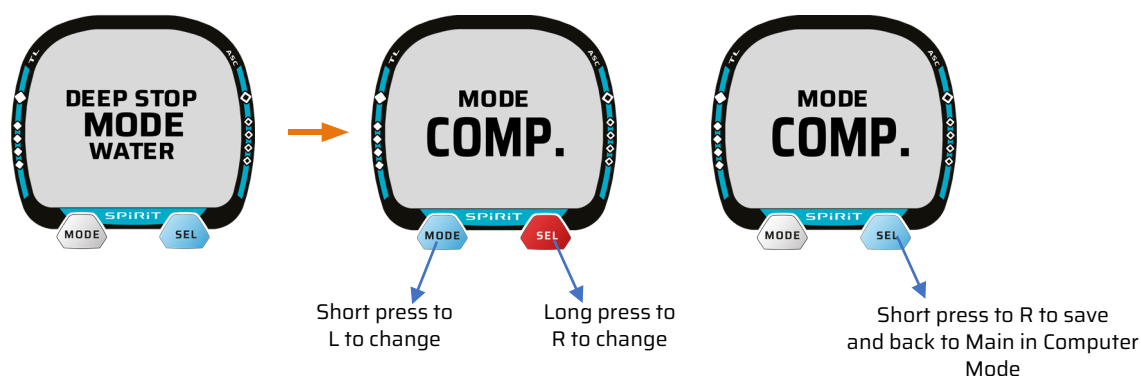


SETTING DIVE PARAMETERS CORRECTLY IS EXTREMELY IMPORTANT. Failure in setting dive parameters to suit the dive to be made may cause serious injuries and death.

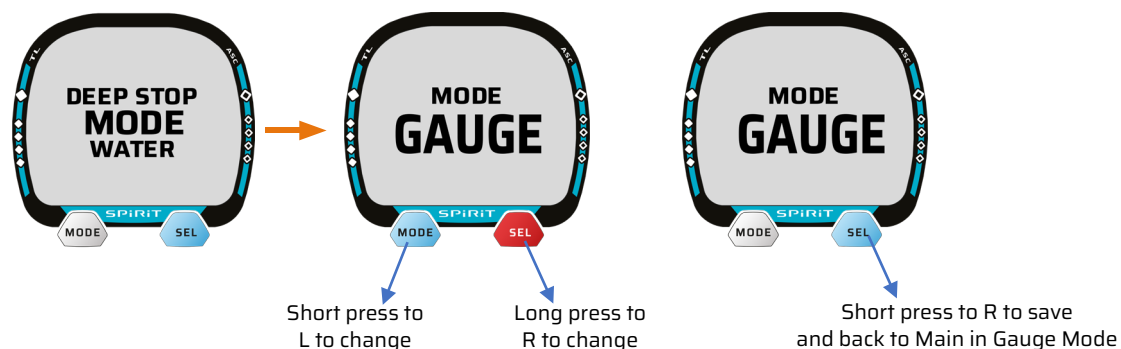
4.3.1. Setting the Dive Mode

The Spirit has two operation modes:

- Computer Mode** for open circuit dives with air and enriched air nitrox (EAN) concentrations from 22% to 100% oxygen is intended to provide decompression related information such as no deco time remaining, critical tissue saturation (graphically), deco stop(s) deep stop, safety stop, time to surface, no fly time and time to desaturation, as well as oxygen toxicity related information such as partial pressure of O₂ (PPO₂), oxygen toxicity (O₂tox), oxygen time remaining, maximum operating depth (MOD) for the gases set. The Spirit enables users to set three different gases and to switch from one gas to another during a dive. To set the Spirit in Computer Mode, select MODE in DIVE SETTINGS menu, select COMP. and save (and back to Main in Computer Mode).



- Gauge Mode** for the diver who intends to use the Spirit as a depth gauge and timer. To set the Spirit to Gauge Mode, select MODE in DIVE SETTINGS menu, select GAUGE and save (and back to Main in Gauge Mode).



Both modes provide depth, ascent rate (graphically), dive time, altitude, time, and date information. Both modes share the same setting for water type (see 4.3.2) and sampling rate (see 4.3.3). On the other hand, the following settings are only related to the Computer Mode:

- Setting the breathing gases (see 4.3.4)
- Adjustment of the conservatism level of the algorithm (see 4.3.5)
- Setting the safety stop (see 4.3.6)
- Setting the deep stop (see 4.3.7)



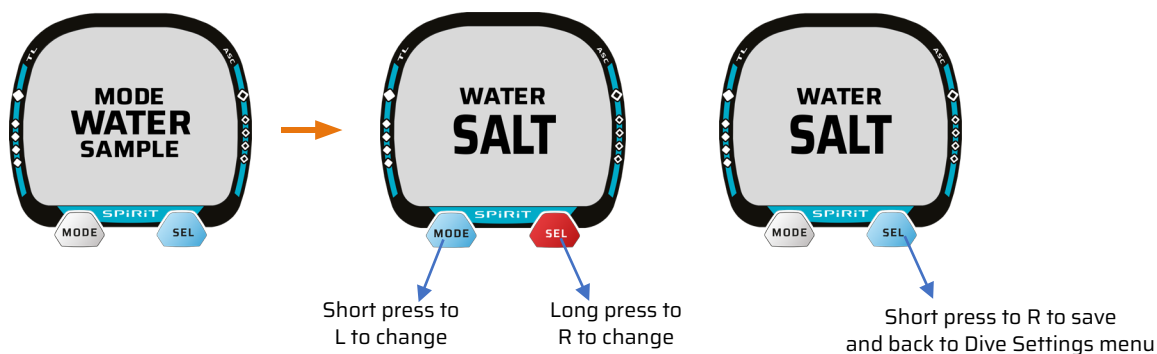
Note that after a dive is made in gauge mode, you cannot set the Spirit to computer mode for 24 hours as no decompression and oxygen toxicity related calculations are recorded in gauge mode.

4.3.2. Selection of Salt or Fresh water

The Spirit enables you to set the type of water you will dive in.

To set SALT, select WATER in DIVE SETTINGS menu, select SALT and save.

If you will dive in fresh water, set WATER to FRESH.

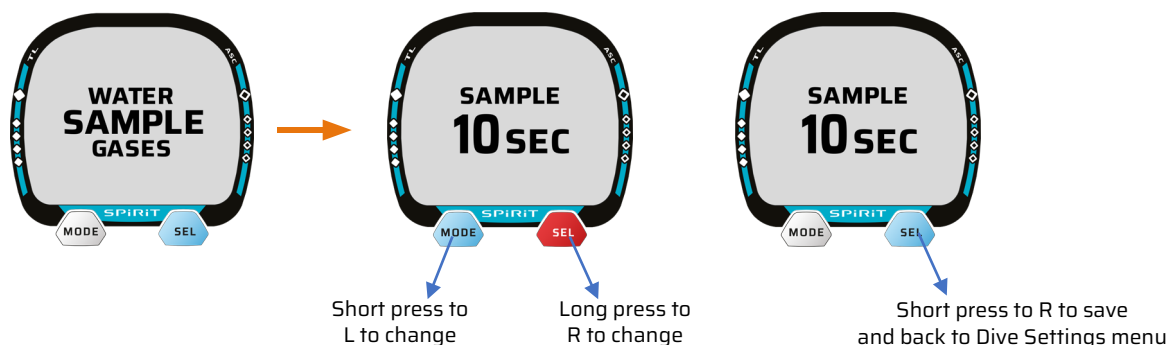


BE SURE THAT YOU SET THE WATER TYPE CORRECTLY. An incorrect water type setting will cause depth reading and ambient pressure related calculations to be erroneous and may cause serious injuries and death.

4.3.3. Selection of the Sampling Rate

The sampling rate controls how often information from the dive is saved to the active log. The default sampling rate is 10 seconds, and can be set to 2, 10, 20 or 60 seconds.

To set the sampling rate, select SAMPLE in DIVE SETTINGS menu.



If you are planning to analyze your dive profile after transferring it to the DiveSync App, a smaller sampling rate will be more suitable, as your dive profile will be recorded in higher detail.

4.3.4. Setting the Breathing Gases

The Spirit enables you to set 3 different gases and switch from a gas to another during a dive. These gases can be set to Air or Enriched Air Nitrox (EAN). For Air, just set AIR for the gas you will use during dive. You can also set the gases to nitrox by selecting EAN22 to EAN99. To set a gas to 100% oxygen, just select O2. If you will dive with a single gas, set Gas 2 and GAS 3 to OFF and if you will dive with two gases, set GAS 3 to OFF.



A new dive always starts with the Gas 1. Ten minutes after a dive, the actual gas will be the Gas 1.

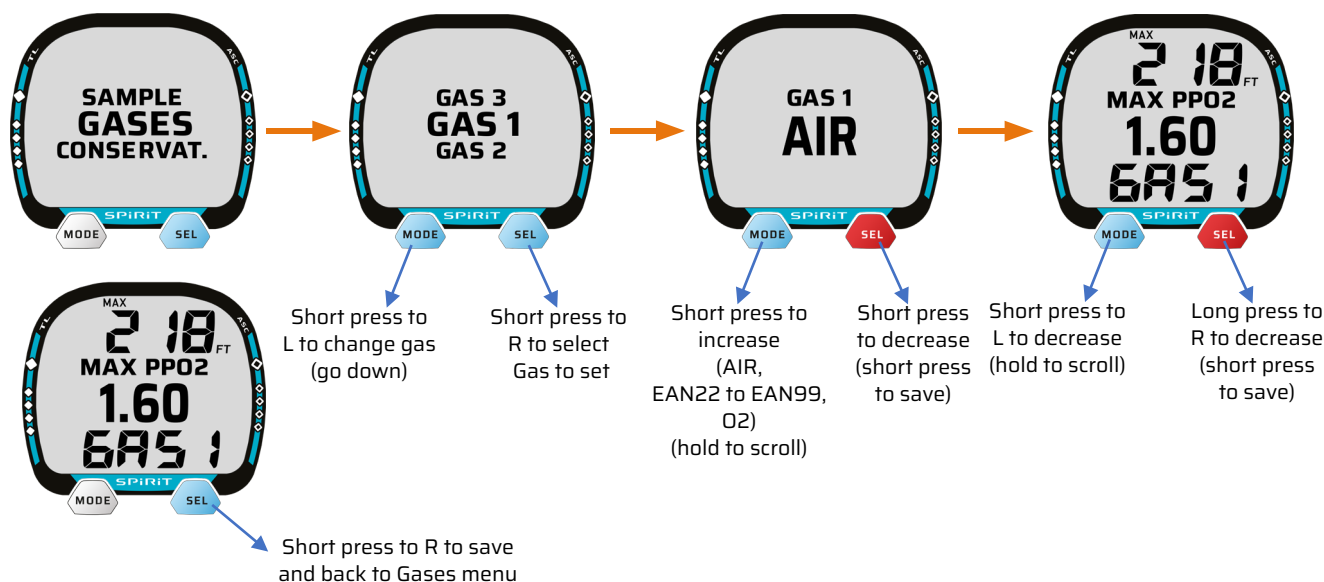


Note that GAS 1 cannot be set to OFF and if you set the GAS 2 to OFF, the GAS 3 will be set to OFF automatically and you cannot set it unless you set the GAS 2 ON.



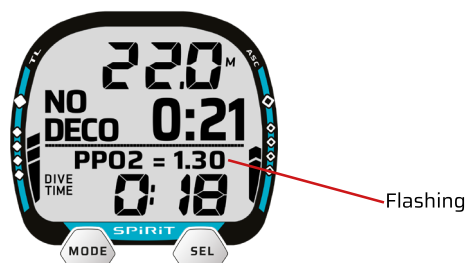
The Gas 1 cannot be set to O2 (100% Oxygen). It is to be set to AIR or EAN (Nitrox).

To set the gases, select GASES from DIVE SETTINGS menu, and select the gas (GAS 1, GAS 2 or GAS 3). You will first select from AIR, EAN or O2. There is also the OFF option for Gas 2 and 3. After selecting among AIR, EAN and O2 (and OFF for Gas 2 and Gas 3), if you selected EAN you will set the O2 concentration then set the MAX PPO2 for the gas which is being set. If AIR or O2 or OFF) selected, O2 percentage setting will be bypassed (Back to Gases Menu if OFF selected).



The MAX depth displayed at top is the MOD for the gas which is being set. As mentioned before, the MOD is the depth where the PPO2 of the gas reaches to the MAX PPO2 set.

If the PPO2 of the breathed gas exceeds the MAX PPO2 value, alarm will sound and the red LED will flash for 10 seconds. The graphic: PPO2 = [current PPO2 value] will flash during alarm sound (10 seconds) or until acknowledged (or PPO2 becomes smaller than the alarm set) at the bottom of the dot matrix area (at the place of Gas Name). Graphic PPO2 = (current PPO2 value) will remain until PPO2 is greater than the alarm set.



At the surface you can check the MAX PPO2 of the actual gas by opening ALT 3*. During a dive you can check the current PPO2 by opening ALT 2* (*see sections 5.5.2 and 5.5.4).



DO NOT ALLOW PPO2 TO EXCEED THE MAX PPO2 SET. Do not go deeper than the maximum operating depth (MOD) for the gas you are breathing. Exposure to high amounts of oxygen may cause oxygen toxicity related injuries and death.



BE SURE THAT YOU SET THE GASES TO MATCH THE GASES IN YOUR TANKS. Any difference in oxygen percentage with the gas in tank and gas you set in Spirit will cause incorrect decompression and oxygen toxicity calculations which may cause serious injuries or death.



DO NOT BLINDLY TRUST THE STATEMENT! Always measure the oxygen percentage of the gas in your nitrox tank with an oxygen analyzer before diving and make sure that the measured value and the gas setting match.



DO NOT DIVE DEEPER THAN THE MAX DEPTH DISPLAYED AT TOP WHILE SETTING A GAS. Going deeper than the max depth for the gas you are using, may cause oxygen toxicity or decompression sickness (DCS) related accidents, injuries, and death.

4.3.5. Setting the Conservatism

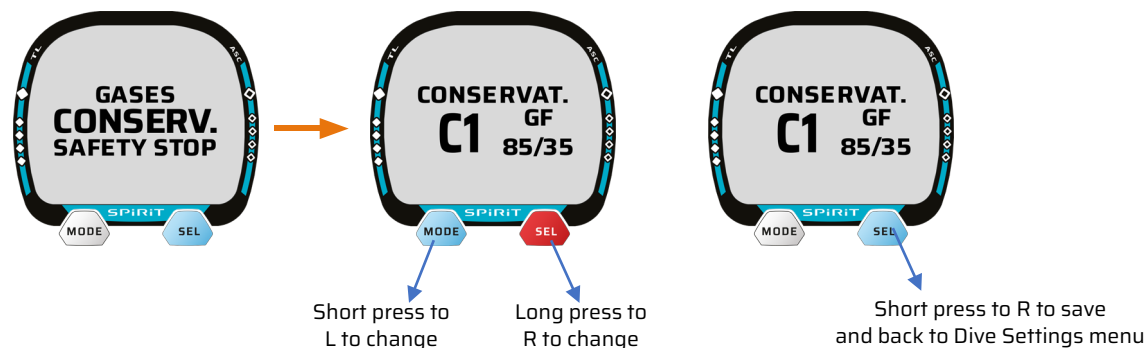
As mentioned in Section 2 of this user manual, dive computers do not assure prevention from decompression sickness. Dive computers perform theoretical calculations using depth and time parameters. On the other hand, there exist factors other than depth and time that affect gas accumulation and bubble formation in tissues. These factors can be individual susceptibility, effort, age, temperature etc. A higher conservatism level adjustment will provide more safety by keeping you away from the decompression limit. Note that this will result in a shorter no deco time (maximum time remaining you can stay at your current depth and then ascend to surface without the need for decompression), or longer deco stop times compared to lower conservatism levels (more liberal options). The Spirit enables you to select among 3 conservatism levels, according to your physical and environmental conditions. The conservatism level is set by selecting CONSERV. in DIVE SETTINGS menu. The options are:

C0 : (GF Low: 90, GF High 90) is the most liberal level for excellent physical and environmental conditions, and experienced divers.

C1 : (GF Low: 35, GF High 85) is the medium level for average conditions.

C2 : (GF Low: 35, GF High 70) is the most conservatism level that is to be selected in existence of risk factors

The GF values corresponding to the conservatism level set will be displayed at right.



Some of the risk factors you should consider for adjusting your conservatism level are listed below:

- Poor physical fitness
- Cold water (water temperature less than 20 °C (68 °F))
- Age, particularly over the age of 50
- Fatigue (from over exercising, lack of sleep, exhausting travel)
- Dehydration (may slow down off gassing)
- Exercise before or after dive (especially after dive)
- Stress or sickness
- Weight (higher risk of decompression for overweight divers)
- Patent foramen ovale (PFO)
- Overexertion during diving (may increase gas accumulation in tissue by accelerating blood circulation)



SET THE CORRECT CONSERVATISM LEVEL! The diver should use this option to make the calculations more conservative whenever it is believed that factors which tend to increase the possibility of decompression sickness (DCS) exist. Failure to properly select the correct conservatism level may greatly increase the risk of DCS.

4.3.6. Setting the Safety Stop

If you set the safety stop (SS) to ON, upon ascending to within 3 ft (0.9 m) deeper than the safety stop depth set for 1 second during any no deco dive in which depth exceeded 30 ft (9 m) for 1 second, safety stop at the depth set will appear with a short beep together with a countdown beginning at the safety stop Time set and countdown to 0:00. If the safety stop was set to OFF the display will not appear.



If you descend 10 ft (3 m) deeper than the stop depth for 10 seconds during the countdown, the safety stop will be removed. Safety stop will reappear upon ascent again to within 3 ft (0.9 m) deeper than the safety stop depth set for 1 second.

If you enter deco and complete the deco obligations, and then you re-descend below 30 ft (9 m); the safety stop Main screen is to appear again upon ascent to within 3 ft (0.9 m) deeper than the safety stop depth set for 1 second.

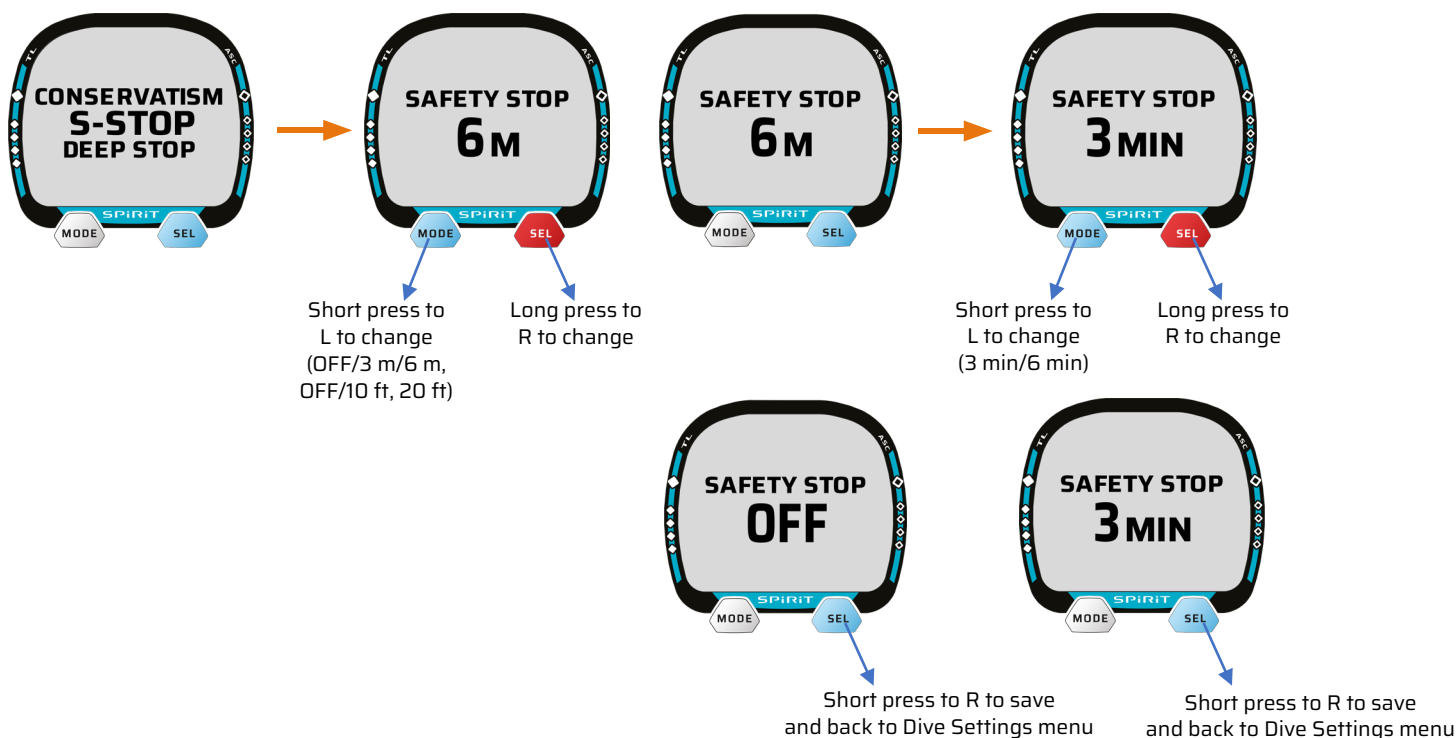
If you ascend shallower than the safety stop depth before the countdown reaches to 0:00, the safety stop will continue to be displayed until the countdown reaches to 0:00. But if you surface (3 ft (0.9 m) for 1 second), the safety stop shall be removed.

You can ignore the safety stop. There will be no decompression related sanction. However, it is highly recommended to complete the safety stop before surfacing.

The Spirit enables you to set safety stop OFF or set the depth of safety stop depth to 3 or 6 m (10 or 20 ft). You can also set the safety stop time to 3 minutes or 5 minutes.

To set the safety stop, select S-STOP in DIVE SETTINGS menu. You will first set the depth (or set safety stop OFF). If you set safety stop OFF, the Spirit will go back to the DIVE SETTINGS menu after saving with R button.

If you set a depth for the safety stop, set safety stop time screen will be displayed after saving. Set stop time and go back to the menu after saving.



PERFORM SAFETY STOP! Even not mandatory, we highly recommend you to perform a safety stop which will provide extra time for your body to release excess nitrogen that builds up in your system during the dive.

4.3.7. Setting the Deep Stop

When you set the deep stop (DS) to ON, the Spirit will trigger DS when you descend to 80 ft (24 m) for 1 second and calculate (and continually update, in the background) a Stop Depth equal to 1/2 the Max Depth. Upon initial ascent to within 10 ft (3 m) deeper the calculated Deep Stop Depth for 1 second, a DS screen will appear with a 2-minute countdown timer beginning at 2:00 (min:sec) and countdown to 0:00.



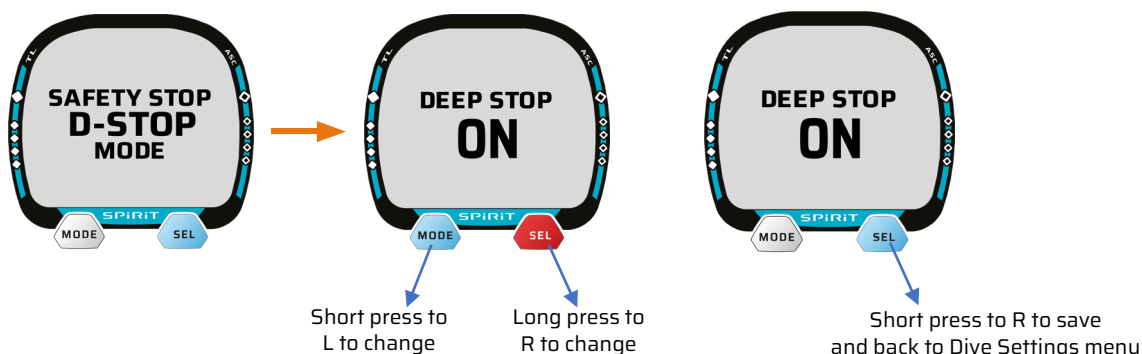
If you descend 10 ft (3 m) below, or ascend 10 ft (3 m) above, the calculated stop depth for 10 seconds during the countdown, the deep stop will disappear and will be disabled for the remainder of that dive. There is to be no penalty if you ignore the deep stop.

During the 2-minute countdown while at the deep stop, the diver is to have access to deep stop alternative displays (ALT) which are to revert to the deep stop main display after 5 seconds.

In the event of a high Oxtox condition (greater than 80%) or if you enter deco, the deep stop is to be disabled for the remainder of that dive.

The deep stop feature and displays are to be disabled during a High PPO2 Alarm condition (PPO2 greater than the MAX PPO2 set).

To set the deep stop, select D-STOP from DIVE SETTINGS Menu. Set deep stop ON or OFF then back to DIVE SETTINGS menu after saving.



When you set the deep stop to ON and if safety stop was set to OFF, the safety stop will be automatically set to 6 m - 3 min (no change in user setting if it was ON).

4.4. Setting the Alarms

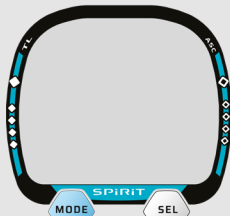
The Spirit is equipped with a red LED for better recognition of alarms.



The LED light is activated in alarm situations and flashes in sync with the alarm sound. It is possible to turn the alarm sound OFF (see 4.2.5)

You can set alarms that are common to Computer and Gauge mode (Depth alarm in Section 4.4.1 and Dive time alarm 4.4.2). The alarms specific to Computer Mode are:

- No Deco (Section 4.4.3)
- Oxygen Toxicity (Oxtox) (Section 4.4.4)

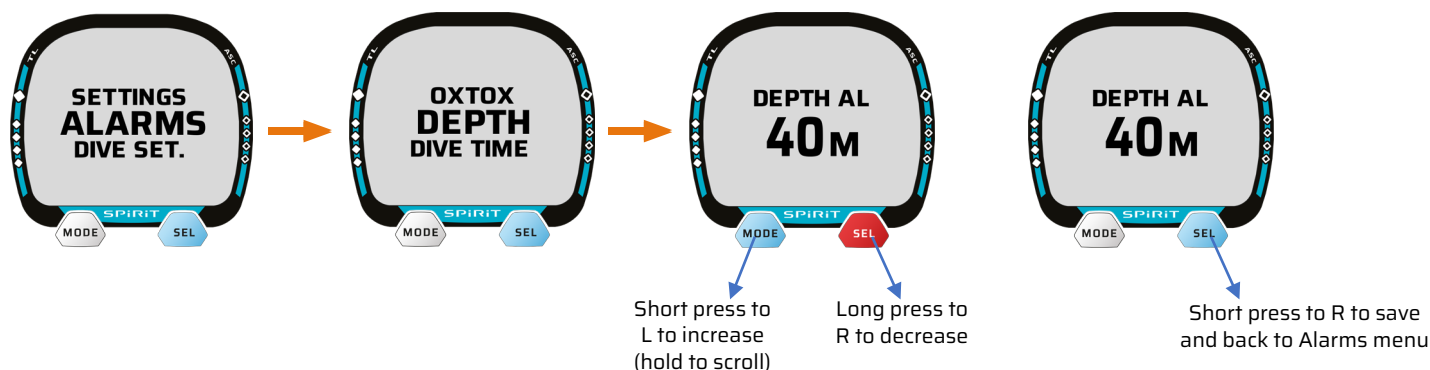



The alarms will sound for 10 seconds then silenced. Short press to L button to acknowledge and silence alarms before 10 seconds.

4.4.1. Depth Alarm

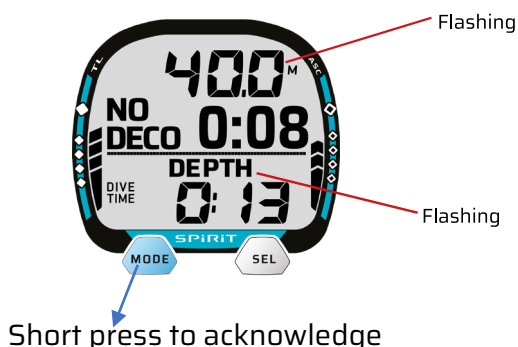
The Spirit enables you to set a depth alarm. The depth alarm will be displayed if set ON, at the depth you set.

To set the depth alarm, enter the ALARMS menu from Main menu. Select DEPTH. You can set the depth alarm to OFF or set the depth from 10 to 100 m with 1 m increments (30 to 330 ft with 5 ft increments).



If you set the depth alarm to ON, at the depth set, the alarm will sound, and the red LED will flash for 10 seconds or until acknowledged. Additionally, the graphic: DEPTH and Depth Digits will flash for 10 seconds or until acknowledged.

Press the L button to acknowledge alarms.



Short press to acknowledge

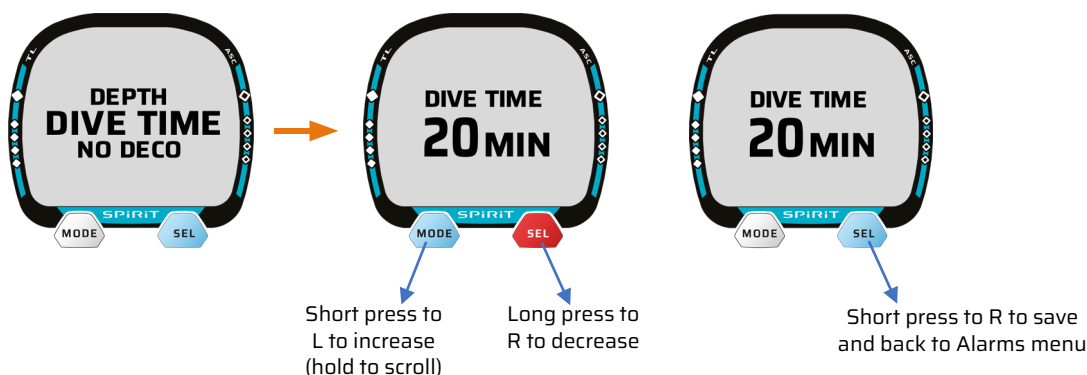


If you have set multiple gases, the L button is for opening the gas switch screen during a dive, but if at that time any alarm is sounding, L button will first acknowledge the alarm. Then you can open the gas switch screen.

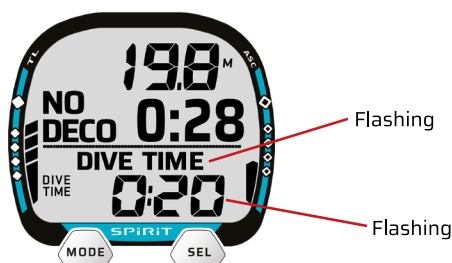
4.4.2. Dive Time Alarm

The Spirit enables you to set a dive time alarm. The dive time alarm will be displayed if set to ON at the time you set.

To set the dive time alarm, enter the ALARMS menu from the Main menu. Select DIVE TIME. You can set the dive time alarm OFF or from 1 to 99 minutes with 1-minute increments.



If you set the dive alarm to ON at the depth set, the alarm will sound, and the red LED will flash for 10 seconds. Additionally, the graphic: DIVE TIME and Dive Time Digits will flash for 10 seconds or until acknowledged.



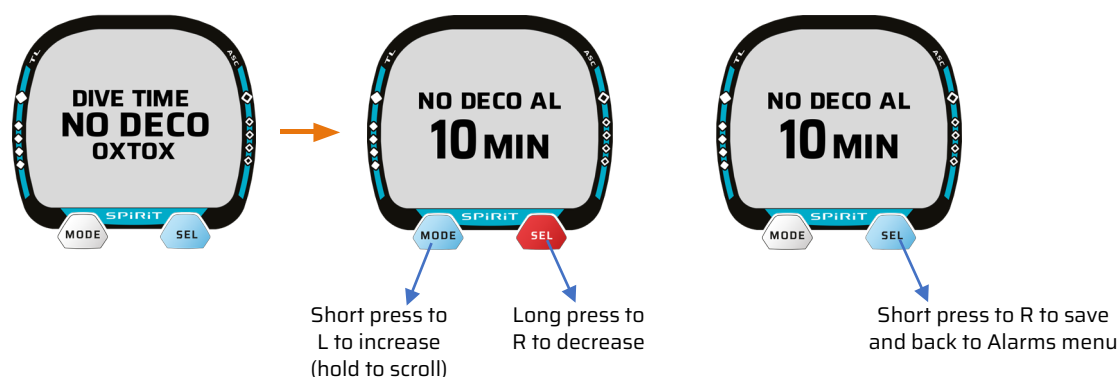
4.4.3. No Deco Alarm

The Spirit will show deco stop depth and time instead of no deco time if your current gas loading necessitates performing a deco stop before surfacing. Although when the no deco time is greater than 0:00, you can begin to ascend and surface without a deco obligation, we highly recommend putting a safety margin and begin to ascend before no deco time is close to 0:00.

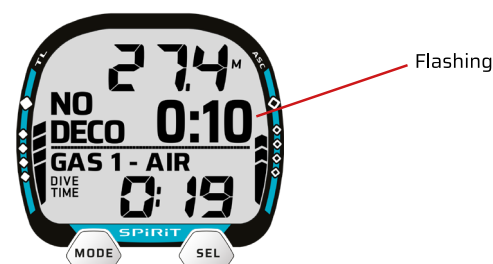
The Spirit enables you to set a no deco alarm. The no deco alarm will be displayed when no deco time decreases to the alarm you set.

To set the no deco alarm, enter the ALARMS menu from Main menu. Select NO DECO. You can set the no deco alarm from 1 to 30 minutes with 1-minute increments.

The no deco alarm exists only in Computer mode and cannot be set OFF.



If No Deco Time decreases to the alarm value set, the alarm shall sound, and the red LED will flash for 10 seconds. The graphic: NO DECO and No Deco Time Digits will flash during audible alarms or until acknowledged or No Deco Time becomes greater than the alarm value.





DO NOT ALLOW NO DECO TO BE 0:00. Begin to ascend at the time no deco alarm sounds (or preferably earlier).

4.4.4. Oxtox (Oxygen Toxicity) Alarm

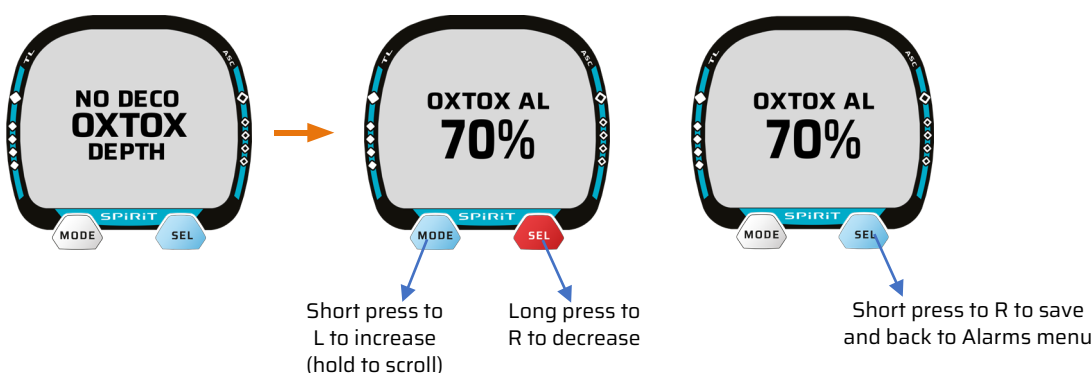
Oxtox (Oxygen Toxicity) during a dive is displayed on an ALT 2 display as a percentage of allowed saturation identified by the OXTOX graphic. Oxtox is also displayed at surface, in computer mode in ALT 3 at surface, and ALT 2 during a dive (see sections 5.5.2 and 5.5.4).

The limit for Oxtox (100%) is set at 300 OTU (Oxygen Tolerance Units) per dive or for a 24-hour period.

The Spirit enables you to set an Oxtox Alarm OFF or from 60% to 99% with 1% increments.

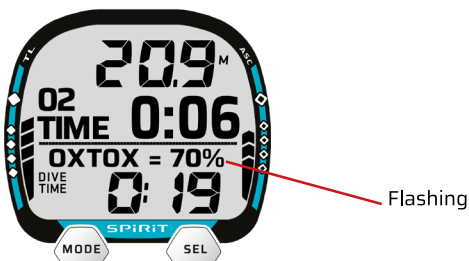
The Oxtox Alarm exists only in Computer mode.

To set the Oxtox Alarm, enter the ALARMS menu from the Main menu. Select OXTOX.

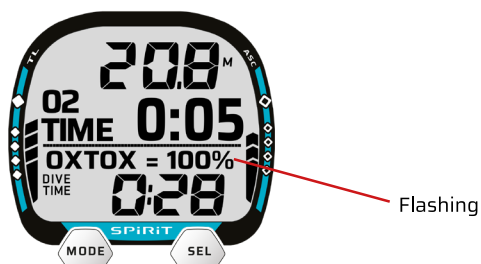


The Oxtox Alarm will be displayed when Oxtox reaches the value you set.

The actual Oxtox value will flash at bottom of dot matrix area during the alarm.



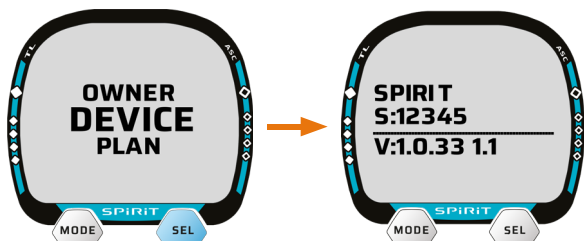
If Oxtox reaches to 100%, the Oxtox Alarm shall display again with the graphic OXTOX =100% that will remain flashing even if the alarm is acknowledged until Oxtox becomes less than 100%.



DO NOT ALLOW OXTOX TO BE 100%! Check the Oxtox displayed at ALT 2 (Press R button 2 times when on main display) often and begin to ascend when the Oxtox Alarm sounds (or preferably earlier). Exposure to high amounts of oxygen may cause serious injuries and death.

4.5. Device Info

The Device Info screen can be reached by selecting DEVICE at the main menu. Here you can view the model name, serial number, and firmware version of your Spirit.



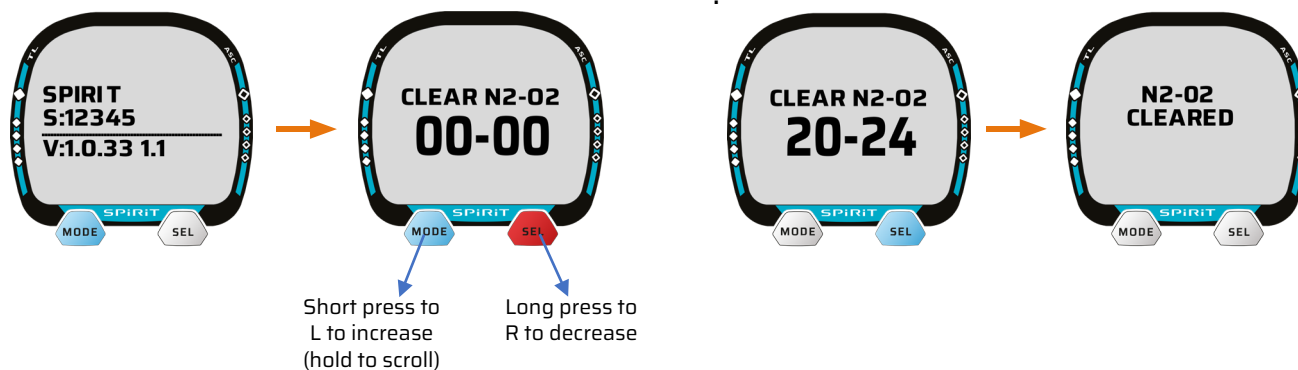
4.6. Clear N2-O2

The Spirit enables you to reset all nitrogen loading and oxygen toxicity related calculations using the Reset Deco feature.

This feature is intended to be used to give your Spirit to another diver who has not dived in the last 24 hours, so that the decompression and oxygen toxicity calculations of the next dive will not be affected by previous dives.

To reset deco, press L while the device info is being displayed (see 4.5). You will be asked to enter a 4-digit code. Set the first 2 digits from 00 to 99 and set the last 2 digits after the first two digits are saved with the R button.

The code for resetting deco is 20-24, and after saving, the message DECO RESET will be displayed for 3 seconds, then the Spirit will shut off.



DO NOT RESET DECO AFTER A DIVE IF YOU WILL DIVE AGAIN IN 24 HOURS! Residual inert gas in tissues and exposure to oxygen in previous dives are to be taken into account for repetitive dives.

5. Diving with the Spirit

5.1. Before You Dive

Make sure you read and understand the previous sections and correctly set the Spirit for the type of dive you will make.

Always perform pre-dive checks before diving.



NEGLECTING THE FOLLOWING POINTS COULD RESULT IN SERIOUS INJURY.

- Activate the Spirit by pressing any button. (Deep Sleep requires long press of both buttons simultaneously).
- Set the Spirit to the correct mode (Computer or Gauge Mode).
- Make sure that you set the gases correctly.
- Check the Maximum Operating Depth (MOD) for the gases set and do not exceed these limits.

Note: The MOD is the maximum depth you can dive, not exceeding the Max PPO2 set for that gas.

- Adjust a higher level of conservatism according to your physical condition and environmental factors.
- Set units correctly.
- Check water type. Make sure that the sea/freshwater setting is correct.
- Check the altitude level as explained in Section 5.9.
- Use PLAN (Section 5.2) to check your No Deco or O2 Time Limit for the depth you are planning to dive.
- Do NOT plan or perform dives with decompression requirements. This would increase the accident risk dramatically.
- Perform a safety stop on every dive.

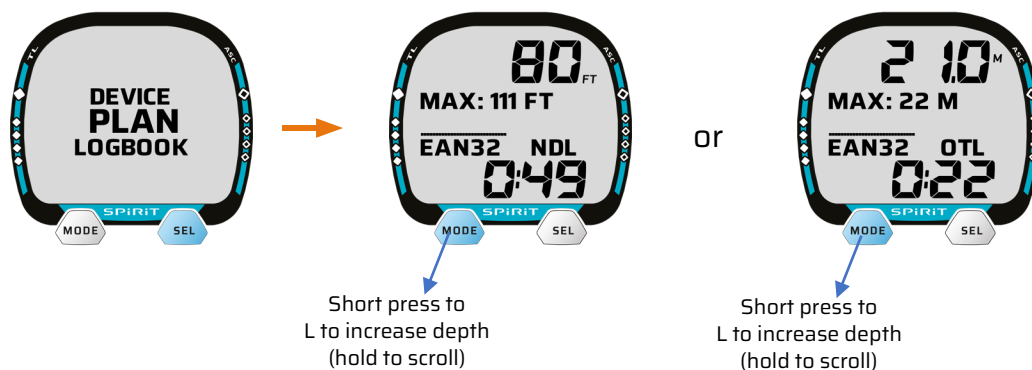
5.2. Planning

It is highly recommended to check your No Deco (or O2 Time) Limits according to the depth you are planning to dive. To do this, enter PLAN from main menu and depths list with their No Deco Limits (NDLs) or Oxygen Time Limits (OTL), the one which is smaller for the related depth.

Depth is displayed at the top with No Deco Limit or Oxygen Time Limit for that depth displayed at the bottom. The maximum depth you can dive with the active gas (GAS 1) which can be the

MOD or the depth where NDL (or OTL) becomes smaller than 1 minutes is displayed with the graphic “MAX:”.

Depths for NDLs or OTLs begin from 9 m (30 ft). You can increase the depth using the L button (hold to scroll) and back to 9 m (30 ft again) after the last depth. Short press to R to back to Main menu.

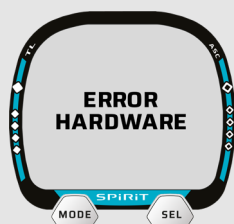


5.3. Diagnostics at activation

When shut off, pressing any button, or bridging the wet contacts will turn on the Spirit.



When turned on, the Spirit will check the pressure to set the depth to 0 m (0 ft). If there is any inconsistency in pressure readings, you will see the error message below, then the unit will shut off after 5 seconds.



This may be caused due to descending without turning on the Spirit and descending too quickly which will create a big difference between pressure readings to calibrate depth.

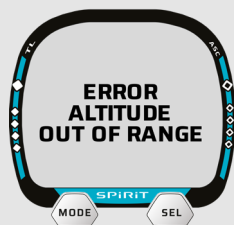


The Spirit will not turn on when at a depth deeper than 15 ft (4.5 m). In that case, you will see a flashing error message below, then the unit will shut off after 5 seconds.

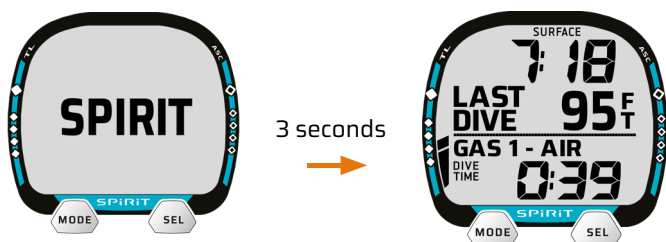




If you turn on the Spirit at an altitude higher than 3300 m (11.000 ft), you will see the error message below and the unit will shut off after 5 seconds.



When activated, a welcome screen will be displayed for 3 seconds, then the surface main display of the mode last set (Computer Mode or Gauge Mode. Computer Mode if activated for the first time).



After a dive in Gauge Mode, you cannot change the mode to Computer for 24 hours.

After turned on, if no dive made in the last 24 hours and if no button is pressed, no wet contact bridging or if you don't enter into a dive for 5 minutes, the Spirit will shut off.

After a dive is completed, the Spirit will enter Energy Saving Mode (ESM) in 15 minutes if there is no button press or wet contact bridging. In ESM, the display and Wireless Sync are turned off to save battery. Any button press will re-open the display. The Spirit will shut off after Desaturation and Fly countdowns reach zero (-:--).



After a dive, if the unit senses a higher level than the altitude of the dive before the Fly counter reaches to 0:00, the message "DO NOT DIVE" with NO FLY time at top shall flash for 5 sec at a rate of 1/sec then the unit will shut off. Please note that Flying after Diving (FAD) Alarm is also triggered when divers are exposed to altitudes more than 600 m (2000 Feet) within the 24-hour period following a dive.

5.4. Bar graphs

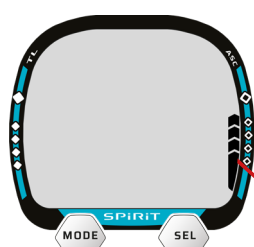
The Spirit dive computer has two bar graphs:

- The ascent rate bar graph (ASC) consists of 5 segments representing ascent rate displayed during dive on Main. 4 segments represent warning condition, and 5 segments represent alarm condition.
- The tissue bar (Ti) consists of 5 segments representing nitrogen loading.

5.4.1. Ascent Speed Bar (ASC)

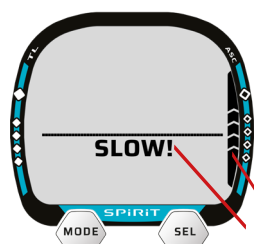
The purpose of the Ascent Rate Speed (ASC) Bar Graph is to assist the diver during an Ascent by providing a visual indication of ascent rate. The segments of the ASC Bar are displayed according to the table below:

Segments	60 ft (18 m) and shallower:	Deeper than 60 ft (18 m):
5	31+ ft/min (9.1+ m/min)	61+ ft/min (18.1+ m/min)
4	26 - 30 ft/min (7.6 - 9 m/min)	60 ft/min (15.1 - 18 m/min)
3	21 - 25 ft/min (6.1 - 7.5 m/min)	50 ft/min (12.15 - 15 m/min)
2	16 - 20 ft/min (4.6 - 6 m/min)	31 - 40 ft/min (9.1 - 12 m/min)
1	11 - 15 ft/min (3.1 - 4.5 m/min)	6.1 - 9 m/min (21 - 30 ft/min)
0	0 - 10 ft/min (0 - 3 m/min)	0 - 6 m/min (11 - 20 ft/min)



Ascent Warning (4 segments): In warning level, the ASC Bar will flash with 3 short beeps. The 4 segments will continue flashing until the ascent rate decreases to non-warning levels.

Flashing



Ascent Alarm (5 segments): In alarm level, the ASC bar (all segments) will flash with the alarm sound and LED for 10 seconds.

SLOW! Will flash with the ASC Bar until ascent rate decreases to non-alarm levels.

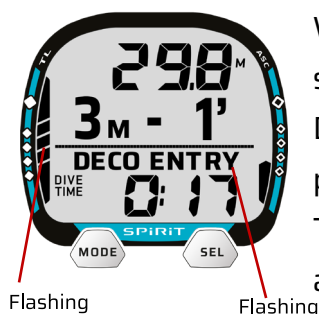
Flashing



DO NOT ASCEND FASTER THAN THE WARNING AND ALARM LEVELS. Slow down your ascent as you are warned by the Spirit. Fast ascents increase the risk of decompression illness and injuries related to rapid pressure alterations.

5.4.2. Tissue Bar (Ti)

The Tissue Bar (Ti) is displayed only in Computer Mode. As there are no decompression related calculations, there is no Tissue Bar in Gauge Mode. The Ti consists of 5 segments. Up to four segments represent no deco status. The number of segments show how close you are to the decompression limit. Five segments indicate that you have deco stop(s) to complete before surfacing.



When a decompression requirement occurs during dive, the Ti Bar (all segments) flash with the deco stop depth and deco time replacing the No Deco time in dot matrix area for 10 seconds or until acknowledged by pressing the L button.

The message “DECO ENTRY” will also flash for 10 seconds with the LED and alarm sound.



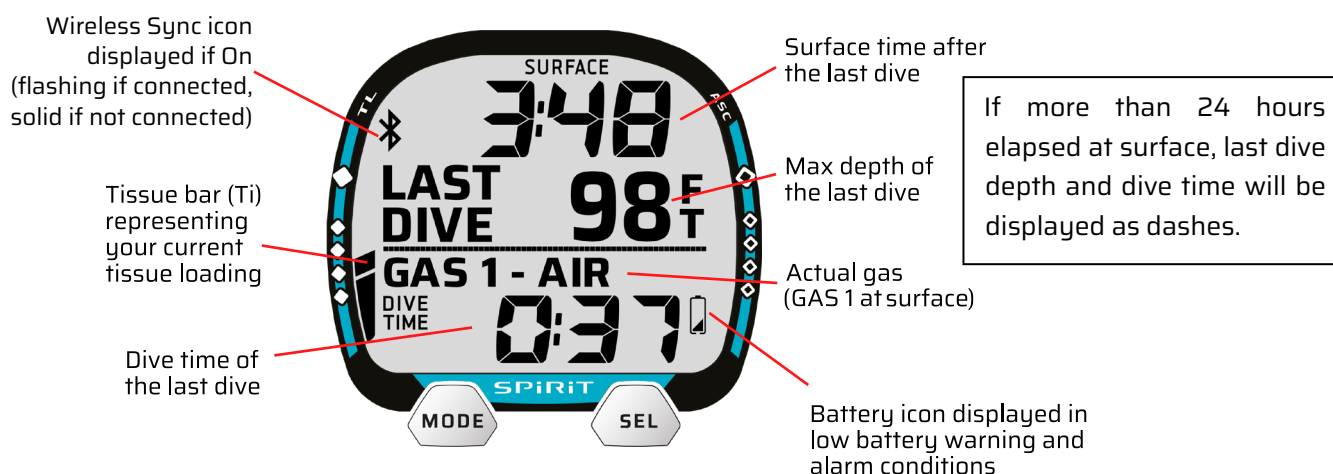
DO NOT PLAN OR PERFORM DIVES WITH DECOMPRESSION REQUIREMENTS. This would increase the accident risk dramatically. If you enter to deco, begin ascent immediately and clear all deco stops before surfacing.

5.5. Computer Mode

Computer Mode is the default dive mode for the Spirit. As mentioned in Section 4.3.1, in this mode, the Spirit performs decompression and oxygen toxicity related calculations and provides the no deco limit, decompression stops, PPO2, Oxtox, safety stop and deep stop information.

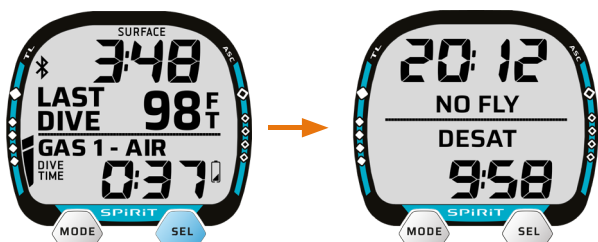
5.5.1. Computer Mode Main Display at Surface

The information displayed on the main screen at surface:



5.5.2. Computer Mode alternative Surface Information Screens

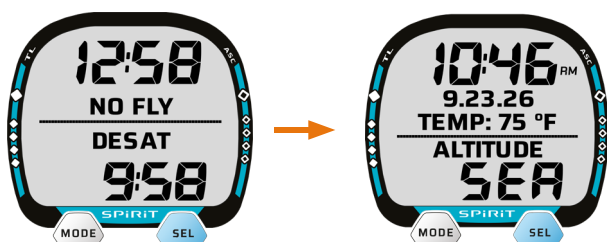
While the surface Main screen is being displayed, you can check time to fly (NO FLY) and time to desaturation (DESAT), opening the Surface ALT 1 by pressing the R button.



DO NOT FLY AFTER A DIVE UNTIL THE NO FLY COUNTER REACHES TO ZERO (-:-).

Reducing ambient pressure after surfacing from a dive increases the risk of DCS dramatically.

While ALT 1 is being displayed, R button opens ALT 2 (or press R button two times while the Main screen is being displayed) where time of day, temperature, and altitude levels are displayed.

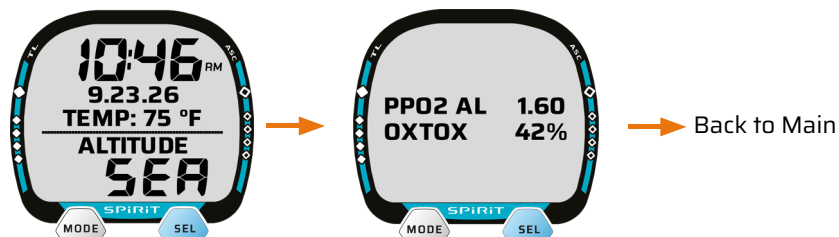


After No Fly and/or Desat counter reaches to 0, they will be displayed as dashes.



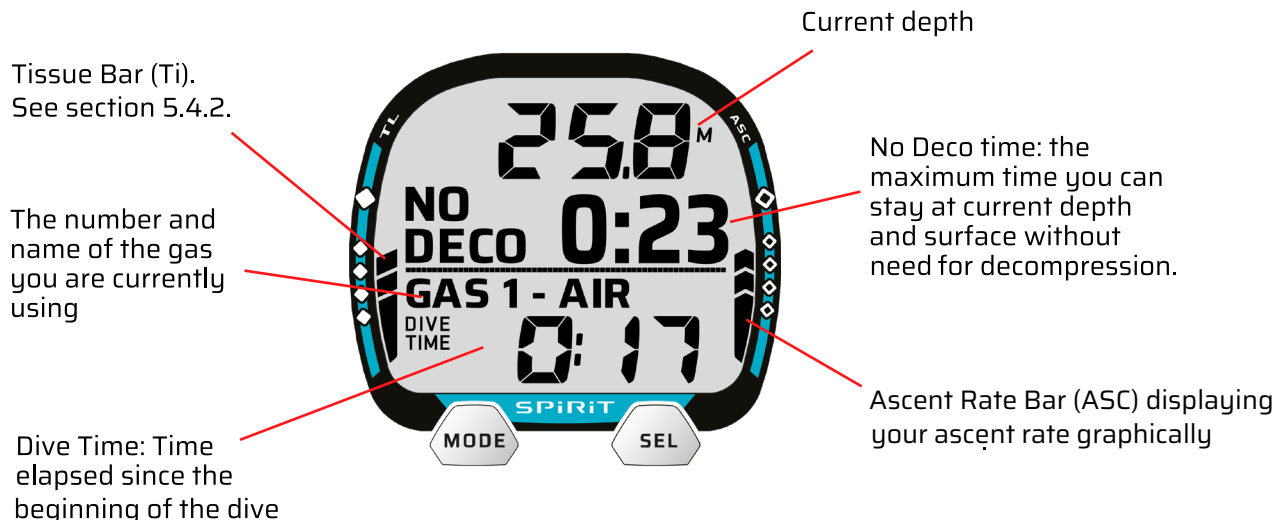
ALWAYS CHECK THE ALTITUDE BEFORE DIVING. See Section 5.9.

While ALT 2 is being displayed, R button opens ALT 3 (or press the R button three times while the Main screen is being displayed) where PPO2 alarm you set and the current Oxtox percentage are displayed. You can go back to Main by pressing the R button while Alt 3 is being displayed.



5.5.3. Diving in Computer Mode

The Spirit will begin to display Dive Main screen when submerged to 1.5 m (5 ft) for 5 seconds. The information displayed on dive main screen:



If the O2 Time (time before Oxtox reaches 100%) is smaller than the No Deco Time, the O2 Time will be displayed at the place of the No Deco Time.



BEGIN ASCENT BEFORE NO DECO OR O2 TIME REACHES TO ZERO (0:00).

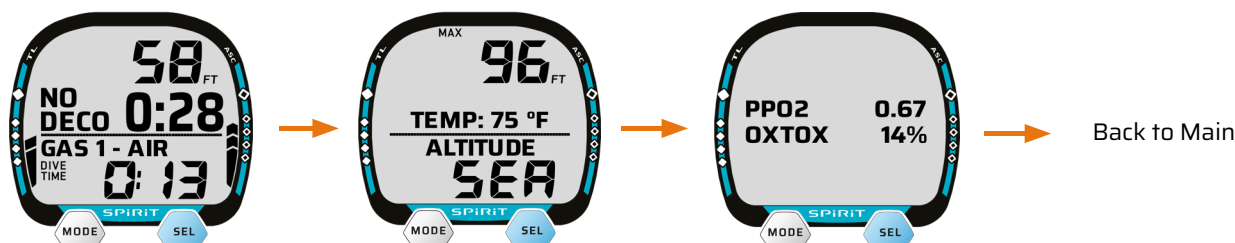
Decompression dives and being exposed to high levels of Oxtox highly increase the risk of decompression sickness and oxygen toxicity.

5.5.4. Computer Mode Alternative Dive Information

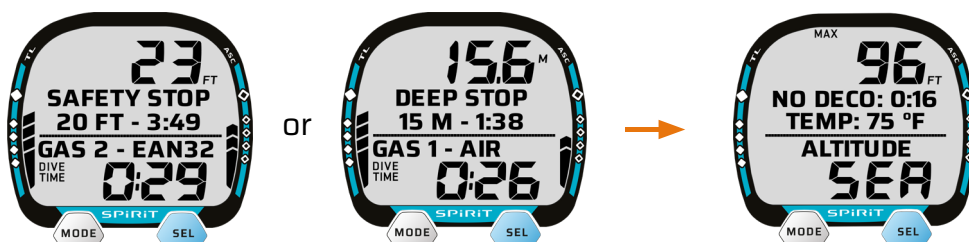
While the dive Main screen is being displayed, by pressing the R button, open ALT 1 where you can check the maximum depth reached so far during the dive, the current temperature, and the altitude level.

Pressing the R button again will show the ALT 2 screen where the current PPO2 and the Oxtox percentage are displayed. The ALT2 will be bypassed if only gas is air.

By pressing the R button again, you will be taken back to dive Main.



While safety stop or deep stop is displayed on Main, as they replace the No Deco, the No Deco (or O2 Time) will be displayed on ALT 1.



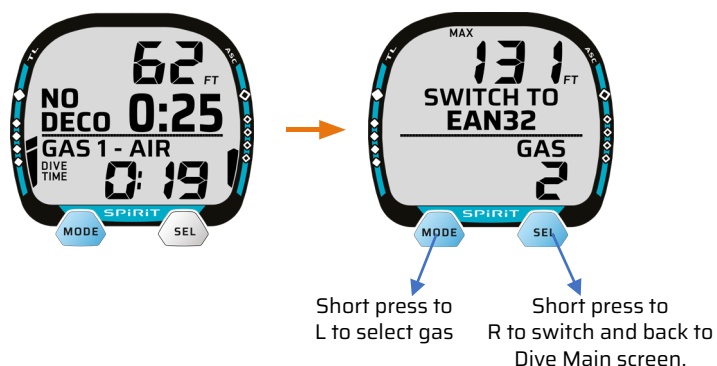
5.5.5. Gas Switching

As mentioned in Section 4.3.4, the Spirit allows you to change the breathing gas during a dive.

Pressing the L button while dive Main is being displayed will show the Gas Switch screen. There will be no gas switch if Gas 2 (and therefore Gas 3) is set to OFF.

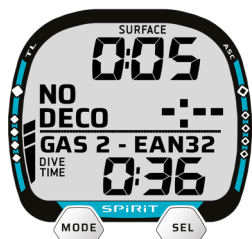
At the gas switch screen, the MOD for the selected gas is displayed at the top, gas name is displayed at the dot matrix area, and gas number is displayed at bottom.

While the Gas Switch screen is being displayed, select Gas 2 or Gas 3 (if set ON) using the L button then save with the R button. The Spirit will go back to Main with the new gas.



5.5.6. The First 10 Minutes after Surfacing

When you ascend shallower than 3 ft (0.9 m) for 1 second, the current depth at the top will be replaced by Surface Time, Dive Time will stop, and No Deco will be displayed as dashes (---) for 10 minutes.



During these 10 minutes, the Spirit is still in dive mode. The Dive ALT 1 and ALT 2 will be displayed with R button and Gas Switch screen will be opened with the L button.

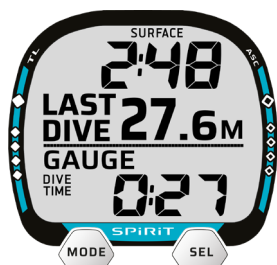
If you dive again in 10 minutes, this will be the continuation of the dive and dive time will start again with the time passed at surface added. After 10 minutes at the surface, if no re-dive, the Spirit will enter surface mode and a dive will be logged.

5.6. Gauge Mode

If you want to use the Spirit as a depth gauge and timer, you can select the Gauge Mode. In this mode, the depth, chronometer and the dive time will be displayed during dives. No decompression and oxygen toxicity related information will be not be displayed.

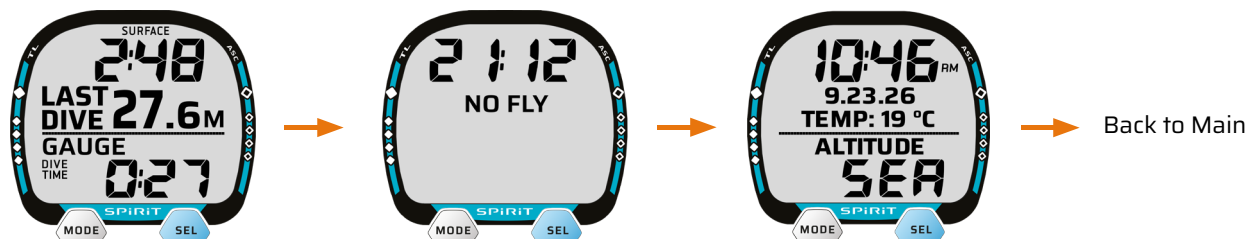
5.6.1. Gauge Mode Main Display at Surface

Like Computer Mode, the surface Main in Gauge Mode displays surface time, last dive's depth and dive time. The graphic "GAUGE" is displayed instead of the gas number and gas name.



5.6.2. Gauge Mode Alternative Surface Information

In Gauge Mode, only No Fly time is displayed in ALT 1. ALT 2 is similar to Computer Mode ALT2 and there is no ALT 3.



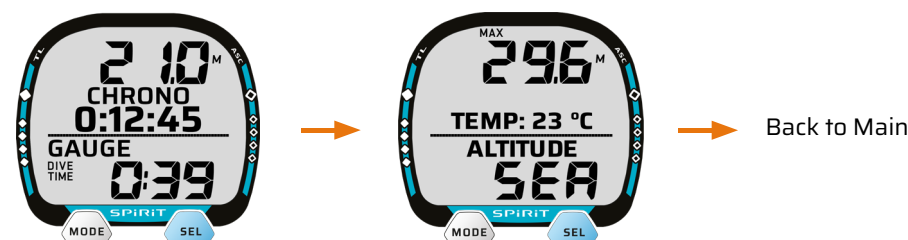
5.6.3. Diving in Gauge Mode

During a dive, a user-controlled chronometer is displayed in the dot matrix area. Use L button to start or stop Chrono. Long press to the L button seconds will reset Chrono to 0:00:00.



5.6.4. Gauge Mode alternative Dive Information

Pressing the R button will show dive ALT 1 which is similar to Computer Mode dive ALT 1. There is no dive ALT 2. Go back to Dive Main screen from ALT 1 by pressing R button (short or long press; it does not matter for this case).



5.7. Deco Dive (Computer Mode)

When nitrogen absorption computations determine that the diver cannot safely surface without stopping at a predetermined depth to allow off gassing of absorbed nitrogen the Spirit displays the deepest deco stop depth and stop time instead of No Deco.

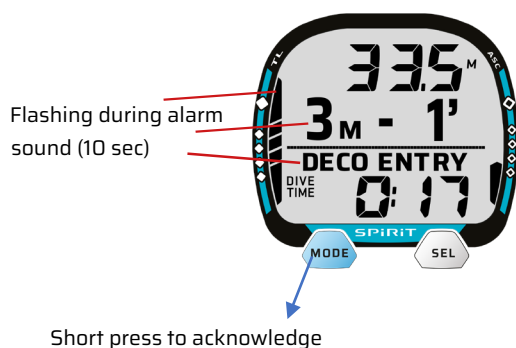


DO NOT PLAN OR PERFORM DIVES REQUIRING DECO STOPS. Deco dives dramatically increase the risk of decompression sickness, dive accidents and fatalities.

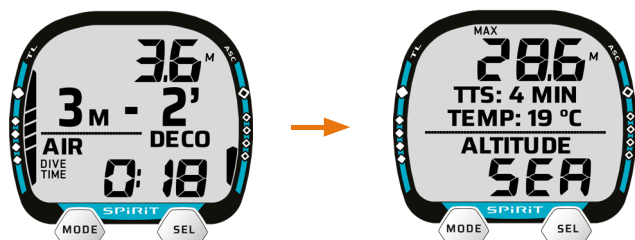
Upon entering into deco, the audible alarm will sound, and the red LED will flash until acknowledged or for a period of 10 seconds. Stop depth and Time (flashing during audible alarm) shall be displayed at the place of No Deco Time. Full Ti bar shall flash for 10 seconds.

DECO ENTRY will flash at the bottom of the dot matrix area in the same space as the gas number and gas name during the audible alarm. After acknowledging, the gas number and gas name will be displayed again.

Similar to all alarms, DECO ENTRY alarm can be acknowledged by short pressing to L button.



After deco entry, the Time to surface (TTS) will be added to ALT 1. The TTS is the time required for surfacing clearing all deco stops.



BEGIN ASCENDING TO THE DEPTH INDICATED FOR THE DECO STOP. Spending more time at depth will increase decompression requirements and increase the risk of decompression sickness, dive accidents, and fatalities.



DO NOT ASCEND SHALLOWER THAN THE DECO DEPTH DISPLAYED. Being shallower than the deco depth may cause dangerous bubble formations in tissues and very likely lead to decompression sickness.

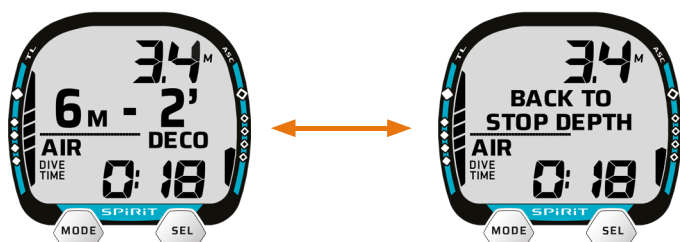
5.8. Violations

Violations arise from:

- Being shallower than deco depth (Computer Mode)
- Deco stops at 60 m (200 ft) or deeper (Computer Mode)
- Exceeding maximum depth of 100 m / 330 ft (Computer and Gauge Modes).
- Deco time greater than 99 minutes.
- Dive Time greater than 9 hours and 59 minutes.
- Shut off during dive.

5.8.1. Being Shallower than Deco Depth

If you ascend to a depth shallower than the deepest stop depth, the Spirit will warn you to return to the stop depth. In this condition, the message “BACK TO STOP DEPTH” will alternate with the stop depth and time.

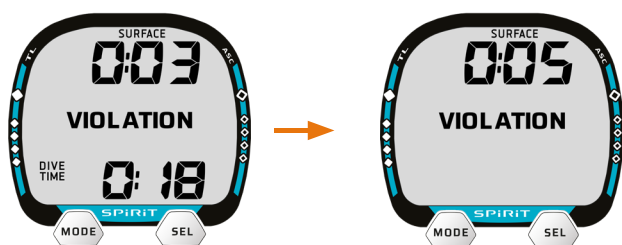


In this condition, a 1.5-minute penalty time will be added to your deco time for every minute you are shallower than the deco depth.



DO NOT DIVE OR FLY WHEN THE SPIRIT IS IN VIOLATION MODE!

If you return to the deco depth in 5 minutes, you can complete your deco obligations and surface. If more than 5 minutes passes above the deco depth, you can still complete your deco obligations and surface. However, the Spirit will enter Violation Mode at Surface (VMS), 5 minutes after surfacing.



In VMS, the Spirit will not enter into a dive for 24 hours. The decompression and oxygen toxicity related information will not be displayed.

The surface menus will function normally but only No Fly will be displayed in the ALT 1. The ALT 3 will be bypassed, and PLAN (Section 5.2) will not be available.

5.8.2. Deco Stops at 60 m (200 ft) or Deeper

We highly recommend not to perform dives with decompression requirements. Additionally having to perform heavy deco stops increases the risks dramatically.

If you have a deco obligation at 60 m (200 ft), you can complete deco obligations and surface. However, the Spirit will enter Violation Mode at Surface (VMS) 5 minutes after surfacing.

In case of a deco obligation deeper than 60 m (200 ft) the Spirit will enter Violation Mode Underwater (VMU) /see picture below). No more decompression and oxygen toxicity related information will be displayed. If VMU occurs during dive, the Spirit will enter to VMS immediately after surfacing.



DO NOT PERFORM DIVES WITH DECO REQUIREMENTS AND EVEN WORSE, DEEP DECO OBLIGATIONS.

5.8.3. Exceeding Maximum Depth

The Spirit is tested to be fully operational to 100 m (330 ft). Going deeper than the maximum depth may cause malfunctions and miscalculations.

If you go deeper than the maximum depth, the audible alarm will sound and the red LED will flash for 10 seconds.

If depth and deco calculation are still accurate, they will be displayed normally. Otherwise, depth and No Deco will be displayed by dashes.

TOO DEEP will be displayed flashing at the place of the gas number and gas name.



Five minutes after surfacing from a dive during which the maximum depth was exceeded, the Spirit will enter Violation Mode at Surface (VMS) for 24 hours. **Do NOT dive or fly during these 24 hours.**

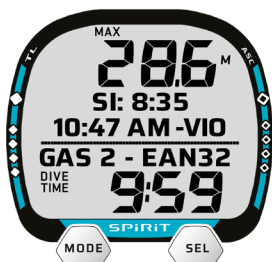


DO NOT PERFORM DEEP DIVES. Going deeper than 30-40 m (100 - 130 ft) dramatically increases the risk of injury and death.

5.8.4. Deco Time Greater than 99 minutes

If any decompression stop time becomes greater than 99 minutes, the Spirit enters VMU directly (see Section 5.8.2 for VMU display and information).

5.8.5. Dive Time greater than 9 hours and 59 minutes



The Spirit can manage and record dives with dive time up to 9 hours and 59 minutes. If dive time becomes greater than 9:59, the unit will shut off.

In this case the 9 hours and 59 minutes of the dive will be recorded in Log and the graphic “-VIO” will be added next to dive start time in Logbook Page 1 (See Section 6.2.1.)



DO NOT DIVE FOR 24 HOURS IF DIVE TIME EXCEEDED 9 HOURS 59 MINUTES as the Nitrogen and Oxtox loadings are not calculated for the portion of the dive in which dive time greater than 9:59 (hr:min).

5.8.6. Shut Off During Dive



If the Spirit shuts off during dive because of an internal error, and then activated again, the IERR Error screen will be displayed. After surfacing from such a dive, the Spirit will enter Violation Mode at Surface (VMS) for 24 hours (see Section 5.8.1 for VMS displays and information).

5.9. Diving at Altitude

The Spirit checks barometric pressure upon activation for setting the altitude level automatically and calibrating the present depth to 0 m (ft).

You can check the altitude level by viewing the ALT 2 screen at surface in Computer and Gauge Modes.

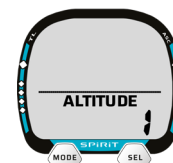
Pressing the R button 2 times when the surface main screen is displayed will open the ALT 2 and the altitude level set is displayed at the bottom of the screen.



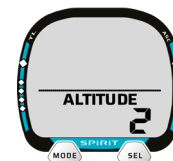
Between 0 and 915 m (0 and 3000 ft), altitude level will be set to SEA



Between 916 and 1525 m (3001 and 5000 ft) altitude level will be set to 1



Between 1526 and 2135 m (5001 and 7000 ft) altitude level will be set to 2



Between 2136 and 2745 m (7001 and 9000 ft) altitude level will be set to 3



Between 2746 and 3300 m (9001 and 11000 ft) altitude level will be set to 4



The Spirit dive computer will not be activated at an altitude higher than 3300 m (11000 ft).

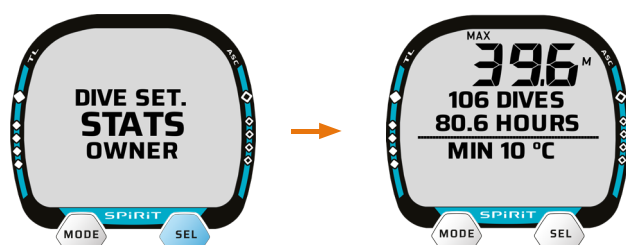


CHECK THE ALTITUDE LEVEL BEFORE EVERY DIVE. Make sure that your altitude and the altitude level set match. Diving with an incorrect altitude level may lead to erroneous decompression calculations and serious injuries.

6. Dive Records

6.1. Statistics

You can enter Statistics by selecting STATS in main menu.



In the STATS screen, the total number of dives, total number of dive hours, max depth, and minimum temperature of all recorded dives will be displayed.

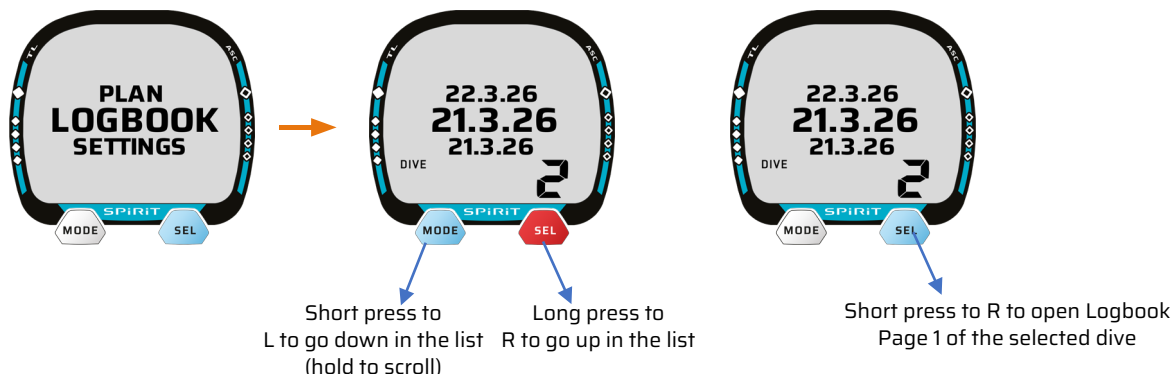
6.2. Spirit Logbook

Dives are recorded to the Logbook 10 minutes after surfacing.

Logbook displays information from the latest 60 Computer and/or Gauge dives sequentially. Even if the battery is removed, information is still retained within the onboard memory.

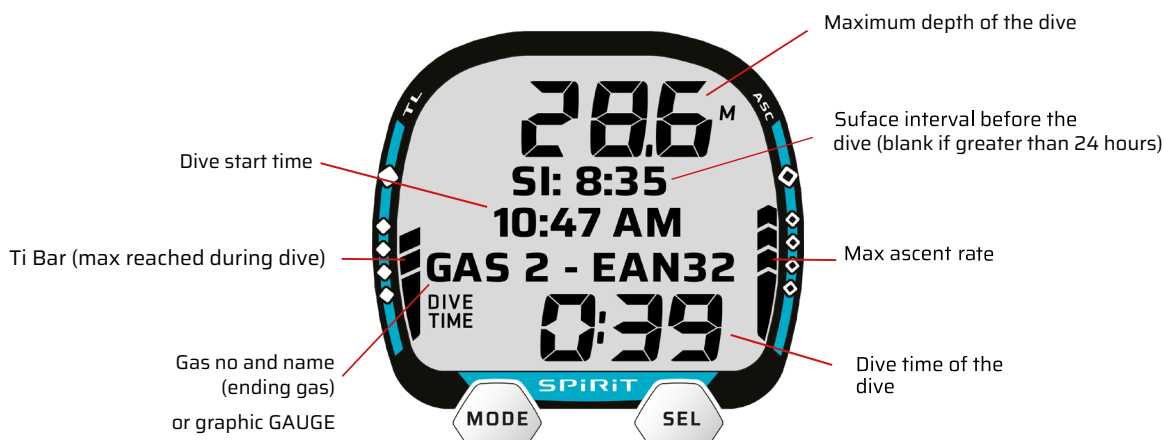
After exceeding 60 dives, the most recent dive is to be recorded while deleting the oldest.

You can enter the Logbook from the main menu at surface. The first screen is the list of recorded dives. The dives are listed by their date and the dive number of the highlighted dives is displayed at the bottom. The dive numbers are assigned daily. The dive number of the first dive of a day is 1, the number of the second dive of the same day is 2, etc.

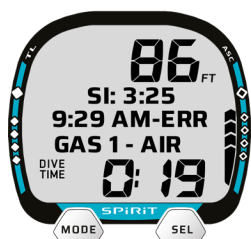


6.2.1. Logbook Page 1

Information displayed on Page 1 of the Logbook of the selected dive:



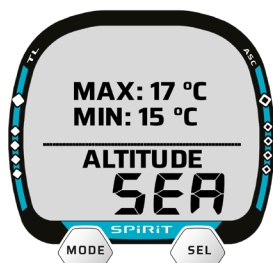
If any violation happened during dive, the graphic "VIO" will be displayed next to the start time.



DO NOT DIVE FOR 24 HOURS AFTER A DIVE DURING WHICH BATTERY WAS DEPLETED. If Spirit shut off because of low battery condition during dive, the remaining portion of the dive will not be recorded and the graphic "ERR" will be displayed next to the start time as in picture

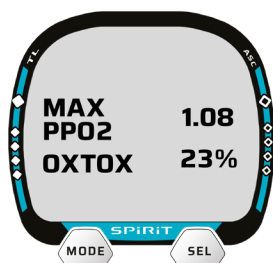
6.2.2. Logbook Page 2

Pressing the R button while Logbook Page 1 is displayed opens Logbook page 2. In Logbook page 2, the maximum and minimum temperature of the dive and the altitude level are displayed.



6.2.3. Logbook Page 3

Pressing the R button while Logbook Page 2 is displayed opens Logbook page 3. In Logbook page 3, the maximum PPO2 reached during dive and the Oxtox at the end of the dive are displayed. This page is bypassed for Gauge mode dives.



Pressing the R button while Logbook page 3 (or page 2 for Gauge mode dives) will return to the list of dives.

The Logbook Page 3 will not be displayed for violation dives.

6.3. Transferring Dive Records to Your Mobile Device

6.3.1. Dive Sync

The Spirit has Wireless Sync for connecting to mobile devices, transferring dive logs, setting/uploading/downloading dive parameters and performing firmware updates.

During firmware update, the message “UPDATING FIRMWARE” will be displayed.



The Spirit can be connected to your mobile device by downloading the free DiveSync app from the App Store (iOS) or Google Play (Android). With the Wireless Sync pairing to DiveSync enabled, settings can be uploaded to set/change gases, set alarms, and set the date/time.

DiveSync also provides users the ability to download dive data to include depth, time, temperature, surface interval, N2 bar graph and ascent rate bar graph, among many other details.

Please visit the DiveSync website at www.divesync.io or the App Store/Google Play Store to begin your free download and learn how to pair the Spirit with your mobile device.

6.3.2. Wireless Sync

The Spirit can be paired using the Wireless Sync feature. This requires a mobile device with Wireless Sync running the DiveSync application.

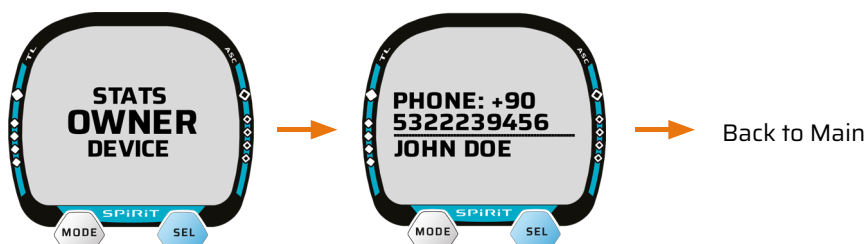
The Settings Upload portion of the program can be used to set/change the Gases, Alarms, Dive Settings, Device Settings, Owner Info using the same Interface System. The Mode setting must be entered using the Spirit button controls.

Information available for retrieval (download) from the Spirit includes items such as dive number, surface interval, time, depth, dive time, start dates/time, lowest temperature, sampling rate, set points, Ti Bar Graph, and ASC Bar Graph.

Refer to the DiveSync application for further instruction on linking your Spirit to your mobile device.

6.3.3. Owner Info

You can enter your phone number and name into the Spirit using the mobile application so that this information will be displayed in Owner Info screen that you can reach by selecting OWNER in main menu.



7. Maintenance

7.1. Battery

The Spirit dive computer is powered by a CR2450 type battery which will last for about 100 dive hours. The battery life may vary according to the usage of the Spirit at the surface and the backlight.

The battery can be replaced by user following the instructions given in the Section 7.1.4.

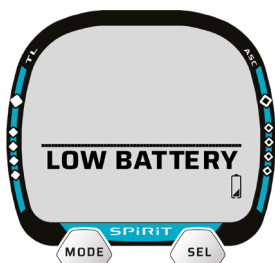
In a low battery condition, if the battery voltage decreases to 2.65 V, you will be warned with a flashing battery icon with a one bar segment.



The Spirit will keep the tissue loading and oxtox information at least for 2 minutes even if the battery is removed.

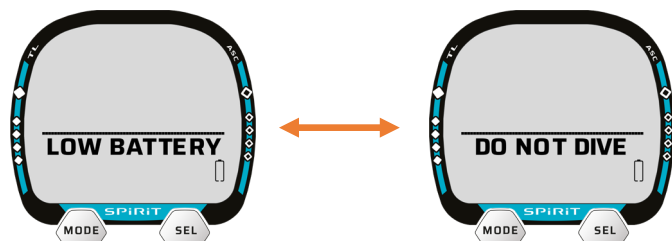
7.1.1. Low Battery Warning

In low battery warning condition, the message LOW BATTERY and the battery icon will be displayed flashing. After acknowledging or after a period of 10 seconds, the message will be removed but the battery icon will remain flashing until shut off or the battery is replaced. The low battery warning shows only at the surface.



7.1.2. Low Battery Alarm

When the battery voltage decreases to 2.45 V, the low battery alarm will be displayed. In low battery alarm condition, the messages LOW BATTERY and DO NOT DIVE will alternate and the battery icon (empty shell) will be displayed flashing. During dive, only LOW BATTERY message and battery icon with empty shell will be displayed.



After acknowledging or after a period of 10 seconds, the message will be removed but the battery icon will remain flashing until shut off or changing battery.

The low battery alarm can trigger at the surface and during a dive. Operation will continue normally except the backlight will be deactivated.

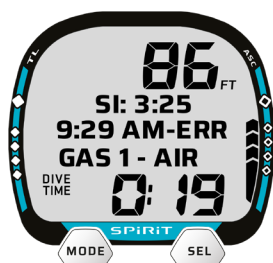
7.1.3. Battery Too Low to Operate

If the battery voltage become too low (~2.4 V), preventing the Spirit to function normally, the unit will shut off. In this case, please replace the battery following the instruction given in this manual or bring the unit to an authorized service.

If shut off because of low battery happens during dive, after replacing the battery, during the first activation the message “Battery depleted in last dive” will be displayed.



The portion of the dive until shut off will be recorded. In the Logbook page 1 of that dive the graphic “- ERR” will be displayed next to start time.



DO NOT DIVE FOR 24 HOURS IF LOW BATTERY SHUT OFF OCCURRED AS NITROGEN LOADING OXTOX RELATED CALCULATIONS ARE NOT PERFORMED AFTER SHUT OFF.

7.1.4. Replacing the Battery

7.1.4.1. Removing the Battery

For removing the battery:

- You don't have to remove the wrist straps.
- The battery compartment is on the back of the unit.
- Rotate the battery cover counterclockwise 10 degrees. You can use a coin.

- Move the battery compartment cover and its O-ring up.
- Slide the battery up and out of the left side of the compartment carefully, without damaging any component.
- Tilt the case so the battery slides into your hand. If the battery doesn't come out easily, carefully nudge it free using your fingertip. Do not use tools to force the battery out. Do not short the positive (+) top of the Battery to the negative (-) contact under it.
- Please, dispose of the battery in compliance with local regulations for lithium battery disposal.
- Discard the old O-ring, do not attempt to reuse it.



DO NOT USE TOOLS TO REMOVE THE O-RING. To ensure proper sealing, O-ring replacement is required each time the battery is replaced.



Rotating the battery cover



Removing the old battery



Removing the old O-ring

- Carefully examine all sealing surfaces for any damage that could compromise proper sealing.
- Check the buttons, lens, and housing to confirm they are intact and free of cracks or other defects



IF YOU NOTICE ANY DAMAGE OR CORROSION, RETURN YOUR SPIRIT TO AN AUTHORIZED OCEANPRO DEALER. Do not use the device until it has been serviced according to factory requirements.

7.1.4.2. Installing the New Battery

- Apply a very light coating of silicone grease to the new O-ring, then seat it in the cover's O-ring groove.
- Insert a new 3-volt CR2450 lithium battery into the battery cavity with the negative side facing down. Ensure it is positioned evenly.

- Align the battery cover (with O-ring installed) on the rim of the battery compartment, then press it down evenly and firmly until fully seated.
- Hold the cover securely in place and rotate it clockwise about 10 degrees using a coin, aligning the arrow with the solid circle.



Installing the new battery



Replacing the O-ring



Ensure that the cover is closed



THE O-RING MUST BE AN AUTHENTIC OCEANPRO PART, AVAILABLE FROM AUTHORIZED OCEANPRO DEALERS. Using any other O-ring will invalidate the warranty.

7.2. Other Maintenance Items

Protect your Spirit from shock, excessive temperatures, exposure to chemicals, and tampering. Soak and rinse the Spirit in fresh water at the end of each day of diving, and check to ensure that all areas are free of debris and 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 Spirit under gently running fresh water. Towel dry before storing.

Never use compressed air to rapidly dry or remove debris from your spirit computer, compressed air can damage internal components and interfere with O-rings and sealing surfaces.

Keep your Spirit cool, dry, and protected during transport.

8. Reference

8.1. Technical Specifications

Dimensions and weight

- Length: 50 mm (1.97 in)
- Width: 50 mm (1.97 in)
- Height: 16.0 mm (0.61 in)
- Weight: 85 g (3.0 oz)

Operating conditions

- Water resistance: 100 m (330 ft) (complying with ISO 6425)
- Normal altitude range: 0 to 3,300 m (0 to 11,000 ft) above sea level
- Operating temperature: 0 °C to 40 °C (32 °F to 104 °F)
- Storage temperature: -20 °C to +50 °C (-4 °F to +122 °F)
- Maintenance cycle: 2 (two) years

Depth gauge

- Temperature compensated digital pressure sensor
- Maximum static pressure: 10 bar (145 psi) (complying with EN 13319 and ISO 6425)
- Accurate to 100 m (328 ft) complying with EN 13319
- Depth display range: 0 to 99 m (0 to 330 ft)
- Resolution: 0.1 m from 0 to 100 m (1 ft from 0 to 330 ft)

Temperature display

- Resolution: 1 °
- Display range: -20 °C to +50 °C (-4 °F to +122 °F)
- Accuracy: ± 2 °C (± 3.6 °F) within 20 minutes of temperature change

Other displays

- Dive time: 0:00 to 9:59 (hr:min)
- Surface time: 00:00 to 23:59 (hr:min. blank after 24 hours)

Calendar clock

- Accuracy: ± 25 s/month (at 20 °C (68 °F))
- 12/24 h display

Gauge Chronometer

- Accuracy: 1 second
- Display range: 0:00:00 to 9:59:59 (hr:min)
- Resolution: 1 second

Logbook

- Sample rate in diving mode: default 10 seconds
- Memory capacity: 60 dives with 2 second sampling rate

8.2. Default Settings

- | | |
|--------------------------|-----------------------|
| • DC Operating Mode | COMPUTER |
| • Date and Time of Day | Actual at calibration |
| • Date and Hour Formats | Month.Day and 12 Hour |
| • Units | Metric |
| • Sound | ON |
| • Light Duration | 5 seconds |
| • Gas 1 | AIR |
| • Gas 2 | OFF |
| • Gas 3 | OFF |
| • Max PP02 | 1.60 (all gases) |
| • OXTOX Alarm | 80% |
| • Dive Time Alarm | OFF |
| • No Deco Alarm | 5 minutes |
| • Depth Alarm | OFF |
| • Safety Stop Time/Depth | 6 m (20 ft)/3 minutes |
| • Deep Stop | OFF |
| • Conservatism | C0 |
| • Water | Salt |
| • Sample | 10 sec |

8.3. Display Ranges and Resolutions

<u>Numeric Display</u>	<u>Range</u>	<u>Resolution</u>
Time of Day	00:00 - 23:59 (hr:min)	1 minute
Temperature	0 to 99 °F (-18 to 60 °C)	1°
Altitude Level	Sea, Level 1 - Level 4	1 level
F02 Set Point	Air, 21 - 99%, O2	1%
Surface Interval time	0:00 - 23:59 (hr:min)	1 minute
Time to Fly	0:00 - 23:50 (hr:min)	1 minute
Depth, Max Depth	0 - 330 FT (0 - 99.9 M)	1 FT (.1 M)
Dive Time	0:00 - 9:59 (hr:min)	1 minute
No Deco Time	0:00 - 9:59 (hr:min)	1 minute
Deep Stop Time	0:00 - 2:00 (min:sec)	1 second
Safety Stop Time	0:00 - 5:00 (min:sec)	1 second
Gauge Chrono	0:00:00 - 9:59:59 (hr:min:sec)	1 second
Deco Stop Time	0 - 99 (min)	1 minute
PPO2 Value	0.00 - 5.00 ATA	.01 ATA
Oxtox	0 - 100%	1%

8.4. Trademark

Oceanpro Spirit, its logos, and other Oceanpro brand trademarks and made names are registered or unregistered trademarks of Oceanpro. All rights are reserved.

8.5. International Limited Warranty

Spirit warrants that during the Warranty Period Oceanpro Authorized Service Center (hereinafter Service Center) will, at its sole discretion, remedy defects in materials or workmanship free of charge either by a) repairing, or b) replacing, or c) refunding, subject to the terms and conditions of this International Limited Warranty. This International Limited Warranty is valid and enforceable regardless of the country of purchase. The International Limited Warranty does not affect your legal rights, granted under mandatory national law applicable to the sale of consumer goods.

Warranty Period

The International Limited Warranty Period starts at the date of original retail purchase. Unless otherwise specified, the Warranty Period for the Spirit is one (1) year and extended to two (2) years when the product is registered.

Exclusions and Limitations: This International Limited Warranty does not cover:

1. a) normal wear and tear such as scratches, abrasions, or alteration of the color and/or material of non-metallic straps, b) defects caused by rough handling, or c) defects or damage resulting from use contrary to intended or recommended use, improper care, negligence, and accidents such as dropping or crushing;
2. printed materials and packaging;
3. defects or alleged defects caused by use with any product, accessory, software and/or service not manufactured or supplied by Oceanpro;
4. batteries.

Oceanpro does not warrant that the operation of the Product or accessory will be uninterrupted or error free, or that the Product or accessory will work with any hardware or software provided by a third party.

This International Limited Warranty is not enforceable if the Product or accessory:

1. has been opened beyond intended use;
2. has been repaired using unauthorized spare parts; modified or repaired by unauthorized Service Center;
3. serial number has been removed, altered or made illegible in any way, as determined at the sole discretion of Oceanpro; or
4. has been exposed to chemicals including but not limited to sunscreen and mosquito repellents.

Access to Oceanpro warranty service

You must provide proof of purchase to access the Oceanpro warranty service. You must also register your product online at www.oceanprosports.com to receive international warranty services globally. For instructions on how to obtain warranty service, please visit www.oceanprosports.com.

Limitation of Liability

To the maximum extent permitted by applicable mandatory laws, this International Limited Warranty is your sole and exclusive remedy and is in lieu of all other warranties, expressed or

implied. Oceanpro shall not be liable for special, incidental, punitive or consequential damages, including but not limited to loss of anticipated benefits, loss of data, loss of use, cost of capital, cost of any substitute equipment or facilities, claims of third parties, damage to property resulting from the purchase or use of the item or arising from breach of the warranty, breach of contract, negligence, strict tort, or any legal or equitable theory, even if Oceanpro knew of the likelihood of such damages. Oceanpro shall not be liable for delay in rendering warranty service.