Liquivision KAON

Dive computer, software version 1.08

CONTENTS

IMPORTANT NOTICES

DANGER

Scuba diving is a dangerous sport, and can lead to injury, disability or death. Always dive within the limits of your training, skills and experience. Technical diving activities, including decompression diving, mixed gas diving, rebreather diving, wreck and/or cave diving all substantially increase the risks of scuba diving.

The KAON dive computer is capable of calculating decompression requirements based on the Bühlmann ZH-L16C algorithm first published in 1990[1]. Decompression is an inexact science. It is possible to follow a decompression plan exactly and still suffer decompression sickness. Following a decompression plan does not, in any way, guarantee the avoidance of decompression sickness. The same profile that gets you out of the water safely one day, may cause decompression sickness another day, and lead to temporary or permanent injury or death.

You can die while diving.

WARNING

The KAON dive computer software likely still has bugs. We have looked for them and tried to eliminate them, but they can still appear during use. Bugs can cause the unit to provide inaccurate or incomplete information, or cause the unit to reset or turn off and stop providing any information at all.

You should always check for software updates
(http://liquivision.com/downloads/KaonSoftwareHistory.php)
and install all applicable updates, every time you prepare to use the KAON.

The KAON dive computer hardware will fail, like any electronic equipment whose components mature and age. It can fail during your dive and stop providing you with critical information.

It is your responsibility to monitor battery voltage and ensure the KAON dive computer has enough battery life to complete your planned dive.

You must have a plan to handle a KAON dive computer failure during your dive. Do not risk your life on only one source of information.

User Agreement and Warranty

Use of your Liquivision KAON is subject to the User Agreement and Warranty ("Agreement") available at the Liquivision website: http://liquivision.com/kaon_manuals.php .

You must read the entire Agreement before using your KAON. If you do not agree with any term of the Agreement, you must not use the KAON, and you may return the KAON to Liquivision or the authorized Liquivision dealer from which you purchased the KAON for a full refund within 30 days after your date of purchase.

If you use the KAON, you are deemed to have agreed to the User Agreement and Warranty.

User Manual

You must read this entire User Manual before using your KAON. Incorrect use of the KAON or its accessories could invalidate your Warranty and can cause permanent damage to the KAON or its accessories.

Liquivision Limitation of Liability

The Agreement includes exclusions and limitations of Liquivision's liability to you. These exclusions and limitations include, but are not limited to, the following:

YOU AGREE THAT YOU UNDERSTAND AND ACCEPT ALL RISKS ASSOCIATED WITH DIVING, AND THAT LIQUIVISION IS NOT LIABLE TO YOU OR ANY OTHER PERSON, INCLUDING YOUR HEIRS, EXECUTORS OR PERSONAL REPRESENTATIVES, FOR ANY LOSS, DAMAGE, COST, EXPENSE OR CLAIM ARISING OUT OF, CAUSED BY OR RELATING TO YOUR PERSONAL INJURY OR DEATH WHILE DIVING, EVEN IF YOUR PERSONAL INJURY OR DEATH IS CAUSED, IN WHOLE OR IN PART AND DIRECTLY OR INDIRECTLY, BY THE KAON OR YOUR USE OF THE KAON, AND REGARDLESS OF WHETHER OR NOT THE KAON FUNCTIONED PROPERLY OR WAS DEFECTIVE IN ANY WAY.

YOU HEREBY IRREVOCABLY WAIVE AND RELEASE LIQUIVISION FROM ANY LIABILITY OR OBLIGATION TO YOU OR YOUR HEIRS, EXECUTORS OR PERSONAL REPRESENTATIVES FOR ANY LOSS, DAMAGE, COST, EXPENSE OR CLAIM ARISING OUT OF, CAUSED BY OR RELATING TO YOUR PERSONAL INJURY OR DEATH WHILE DIVING, EVEN IF YOUR PERSONAL INJURY OR DEATH IS CAUSED, IN WHOLE OR IN PART AND DIRECTLY OR INDIRECTLY, BY THE KAON OR YOUR USE OF THE KAON, AND REGARDLESS OF WHETHER OR NOT THE KAON FUNCTIONED PROPERLY OR WAS DEFECTIVE IN ANY WAY.

You must read the Agreement for all limitations and exclusions of Liquivision's liability to you.

Trademark Notice

Liquivision, the Liquivision logo, KAON, and the KAON logo are all registered and unregistered trademarks, trade names and service marks of Liquivision Products, Inc. All rights are reserved.

Patent Notice

U.S. and international patents have been applied for to protect the Liquivision Tap-Based Navigation and the Liquivision Ceramic Pressure Sensor Technology.

CE

The Liquivision KAON conforms to the requirements of EN 13319 (including EN 61000) and has thus obtained CE certification.

INTRODUCTION – KAON FEATURES

Welcome, and thank you for choosing the Liquivision KAON dive computer!

The KAON is the most affordable color OLED dive computer designed for air and nitrox divers levels. It brings you an exciting set of features focused specifically on your needs:

Hardware Features
• Color OLED (Organic Light Emitting Display) with:
- Display face angled towards the diver
- Large fonts
- User-customizable display colors

• Liquivision's patent-pending intuitive tap-based user interface

• Liquivision's patent-pending ceramic pressure sensor technology

• User-changeable lithium battery, both disposable and rechargeable options available

• Maximum depth -200m (656 ft)

• Accuracy exceeds the limits of EN13319:2000

• The KAON will function when its internal temperature is between - 0 to 40°C (32 to 104°F).

If the KAON's internal temperature exceeds 40°C/104°F (in direct sunlight, for example) the OLED display could show some visual disturbances. This is not a product failure – the display will return to normal when the unit is cooled down.

Software Features
• Rec Mode, for single gas diving: allows any mix from 21-40% O2 (e.g. Air, 32% or 36% nitrox)

• Tec Mode, for multi-gas diving: allows up to 3 mixes from 21-100% (one dive gas, 2 deco gases)

• Gauge Mode, including stopwatch and resettable average depth

• Bühlmann ZH-L16C[1], with optional Gradient Factors

• Visual alarms

• Built-in dive planner

• Built-in dive simulator

• Lifetime dive log memory (3500 hrs)

• Imperial/Metric settings

• Windows and Mac downloadable (PC interface hardware sold separately)

GETTING STARTED – BEFORE DIVING

Register Your Unit/Activate Your Software (Free)

Your KAON comes pre-loaded with software. You will be able to interact with your unit on the surface and run dive simulations immediately. However, the software will not run underwater until you register your unit, obtain a free KAON Unlock PIN code, and enter this code into your KAON to activate the dive functionality of the software.

To register your unit, you must visit: http://www.liquivision.com/activate.php.

During registration, you will be asked to enter your KAON serial number, your real name, address, phone number and a valid email address. You will also be asked to agree and accept the User Agreement and Warranty. Liquivision will then issue you a free KAON Unlock PIN code that you will be able to enter into your KAON unit (detailed instructions are available here: Entering Your Free Software Activation PIN, Setting Time/Date & Battery Type). At this time, your KAON will unlock its diving features.

Liquivision requires you to register for two reasons:
  a) To Mark the Start of Your Warranty Period: the date and time of your registration will be considered the start of your limited warranty period
  b) To Collect Contact Information For Critical Customer Communications: the contact information you provide will be used to contact customers in the event of a critical software upgrade, hardware upgrade, or recall.

If you purchase a second-hand KAON unit, you must email Liquivision at info@liquivision.ca and provide the following information:
- KAON serial number
- Date purchased
- Who you purchased your unit from
- Your address, email and phone number
- The sentence "I agree and accept the KAON User Agreement and Warranty"

This is required to transfer the balance of the Warranty from the previous owner to yourself.

Setup Time/Date & Battery Type

Once you have registered and unlocked your KAON unit, the main screen will still say "NOT Ready To Dive: Edit Your Time/Date, Battery Type".

You will find step-by-step information on how to setup the Time/Date and Battery Type here: Entering Your Free Software Activation PIN, Setting Time/Date & Battery Type

Read The Manual

Before your first dive with the KAON, read this manual and make sure you fully understand it. After any period of not using your KAON, we recommend that you re-read the manual to make sure you fully know and understand how to use it.

If you have any questions, refer first to this manual, then to the FAQ on the Liquivision website and finally to your KAON dealer.

If none of this helps, contact Liquivision support at www.liquivision.com/contact.php .

Familiarize Yourself With Tap-Navigation

Liquivision's tap-based navigation has what we call a "one beer learning curve". Sit down on your sofa for half an hour with a beer, and tap through the KAON menus to familiarize yourself with the tapping interaction and the general menu layouts.

GETTING STARTED – FEATURES OF YOUR KAON UNIT

Customizable Color OLED Display

Battery Compartment

Front Bungee Holes

Front Strap Holes
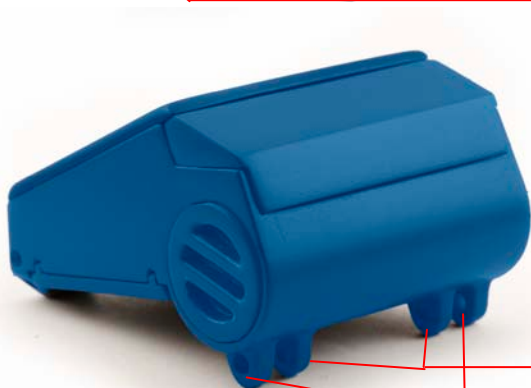
Back Strap Holes

Back Bungee Holes

Infra Red Aperture
(for connection to PC Interface)

Serial Number & CE Mark

HOW TO INSERT THE BUNGEE CORD

- We recommend splitting the bungee in two and using two separate pieces to secure your unit, so if one breaks, the other holds.
- We recommend heat-sealing the knots at the end of the bungee cord (pull the knot away from the KAON casing, heat it up lightly, and form the hot plastic into a hard ball that can't slip back through the bungee hole).

GETTING STARTED – HOW TO TURN ON/TAP YOUR UNIT

DOWN TAP
Aim for the center of the unit.
✓ **Tap on the vertical surface (shown in green)**
✗ **DO NOT tap on the angled surface (shown in red)**

Plane for "Up" and "Down" Tapping:
Your Up and Down taps should follow this imaginary line (parallel to screen)

LEFT TAP
Aim for the center of the unit

Plane for "Left" and "Right" Tapping:
Your Left and Right taps should follow this imaginary line (parallel to screen)

RIGHT TAP
Aim for the center of the unit

UP TAP
Aim for the center & center-left of the unit

Please refer to the short video on tapping provided here: www.liquivision.com/videos.php

For your first KAON interactions, hold your KAON in one hand, and use the other hand to tap it. Once you are familiar with the tapping technique, you will find it easy to tap your KAON when it is on your wrist.

General Tapping/Menu Guidelines:
1) tap "Down" three/five times* to turn the unit on, or to enter into menu mode
2) tap "Down" or "Up" to scroll through menu items
3) tap "Left" or "Right" to enter a menu item

*Everywhere in this manual, you will find references to tapping three/five (3/5) times to turn the unit on, or to enter menu mode. The default setting is three times, but you can adjust it to five times if you are concerned about accidental taps causing you to enter menu mode (Preferences -> Tap Count).

Before you can complete a menu action that can cause loss of information, you will be taken to another screen asking you "Are you sure?". The default answer is "No". To confirm, you will need to scroll down, and choose "Yes".

The last item in a menu is "Exit". On the surface, "Exit" will take you to the previous menu. Underwater, "Exit" will take you back to the dive screen.

There is also a menu timeout:
- if you stay in a surface menu for more than 60 sec., the KAON will timeout to the surface display.
- if you stay in an underwater menu for more than 10 sec., the KAON will timeout to the dive display.

Example: Entering Your Free Software Activation PIN, Setting Time/Date and Battery Type

To turn your KAON on, tap Down three/five times in quick succession.

1. Your KAON will turn on and you will see this screen:

2. To enter menu mode, tap Down three times in quick succession.

3. Your KAON will enter menu mode, and you will see this screen:
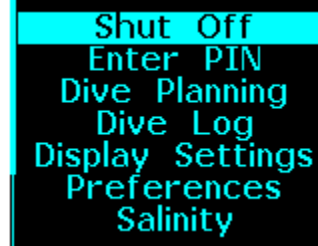
4. Tap Down once to reach the "Enter PIN" menu.
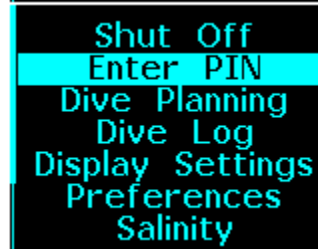
5. Tap Left to enter the "Enter PIN" menu. You will see a line of nine zeroes, and the first one will have a cursor on it.

6. Tap Up or Down to change the first zero to the first digit of your PIN code. Tapping Up will bring the numbers 1-2-3-4-5… in sequence. Tapping Down will bring the numbers 9-8-7-6-5…. in sequence.

7. Tap Left to move the cursor to the next zero, and once again tap Up and Down to set the correct value.
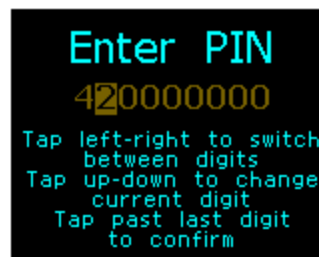
8. Repeat this sequence until you have set all digits of the PIN.
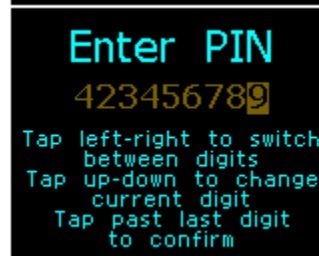
9. Once you have entered all the digits of the PIN, tap Left once more.

If you enter the correct PIN, you will see the following screen:

If you made a mistake in the PIN, you will return to the "Unit Is Locked" main screen, and you will need to repeats Steps 1-9 again.

If you did enter the correct PIN, you must now setup the Time and Date (Steps 10-13) and select your Battery Type (Steps 14-19) to fully activate your unit.

10. To enter menu mode, tap Down three/five times in quick succession.

11. Your KAON will enter menu mode, and you will see this screen:
(You may notice that the "Enter PIN" line has disappeared, since you have successfully entered your PIN)
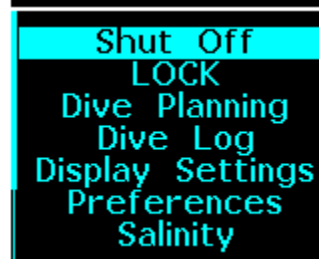
12. Tap Down seven times to reach the Time/Date item.

13. Tap Left to enter the Time/Date menu. You will see the following list of options. Set up your preferred time format (12h/24h), the time of day, the date and the year.

Once you are satisfied with the Time/Date setup, tap Down to "Exit" and tap Left to select it – you will be taken back to the main menu.

14. Once in the main menu, tap Up twice to reach "Preferences", and tap Left to select.

15. You will now be in the "Preferences" menu. Tap Down seven times until you reach "Battery Type", then tap Left to select.

16. You will see a list of battery types. The default is "Blue-ER17335M" and this is the battery your unit ships with. Tap Left to confirm this selection, or tap Up or Down to highlight another option, and then Tap Left to select. Once you Tap Left to select, you will be automatically taken back to the "Preferences" menu.

A quick work on battery types:
Your KAON is equipped with a white battery holder designed for two battery types:
 - high-capacity disposable ER17335M battery (blue wrap)
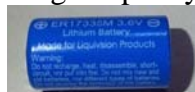
- rechargeable ICR16340 battery (green wrap)

You can order a "Rechargeable Kit" for your KAON (2 Green batteries, a charger and an AC Adapter with international plugs). This is an environmentally-friendly solution that will save you from throwing out many disposable batteries. However, we suggest always having Blue batteries on hand in case you can't access power to recharge the Green ones.

Your KAON is also compatible with the standard-capacity ER14335M battery (white wrap), though this is not recommended as it has lower capacity and it is physically smaller, so it rattles a bit when inserted into the KAON battery holder.
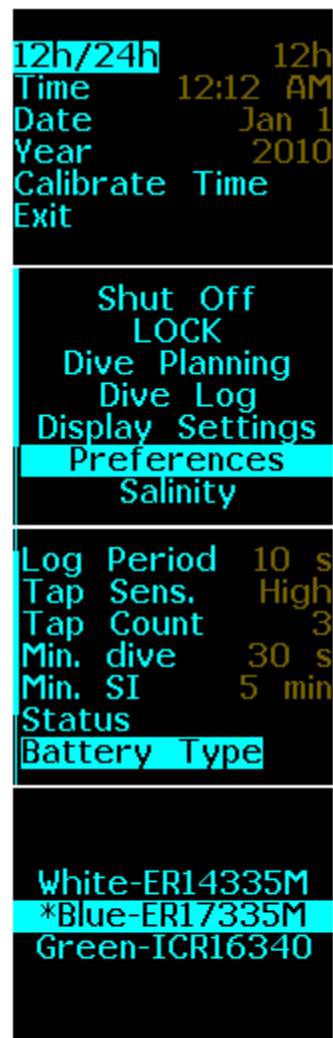
17. Back in the Preferences menu, tap Down three times to reach "Exit" and tap Left to select it.

```
Min. dive     30 s
Min. SI       5 min
Status
Battery Type
Battery Meter
Battery Test
Exit
```

18. Back in the Main menu, tap Down four times to reach "Exit" and tap Left to select it.

```
Dive Log
Display Settings
Preferences
Salinity
Time/Date
Connect to PC
Exit
```

19. You will now be back in the main Surface Display and you should see "Ready to Dive".

```
Ready to dive
Air



12:38AM
```

GETTING STARTED

KAON Surface Display
When you turn your KAON on by tapping Down three/five times, it will go to the "Ready To Dive" Surface Display (provided you have unlocked it, set up the Time/Date and Battery Type as per the steps listed here).

This Surface Display shows your: gas setting (Air), time of day (12:00AM) and the battery status.

If you have already dove your KAON, it will display information about last dive. For more about this, refer to the "Exiting the water" section of the Manual.

If you do not access menus, or enter the water, it will go into sleep mode after 5 minutes. It will continue to monitor pressure in sleep mode so it will wake up again once you jump in the water and descend below 1.6m/5ft.

KAON Scroll Bar
Once you have entered the Surface Display, you can enter Menu Mode by tapping your unit three/five times again.

If the list of menu items exceeds the space on the screen, a Scroll Bar will appear on the right of the screen, indicating where you are in the list. A Scroll Bar at the top of your screen means you are the top of the list, a Scroll Bar at the bottom of your screen means you are at the bottom.
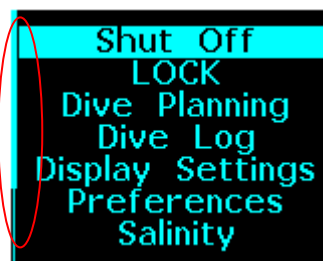
First, Check Your Battery!
The KAON displays battery status on its surface display so that you can check your battery power before you dive. It is very important to make sure that you have enough battery power left to complete your planned dive.

The battery status is represented graphically with a battery icon.

- The battery icon is solid green when the battery voltage is:
    o more than 3.30V for disposable Lithium battery
    o more than 3.50V for rechargeable Lithium-Ion battery
- The battery icon is solid yellow when there is:
    o less than 3.30V for disposable Lithium battery
    o less than 3.50V for rechargeable Lithium-Ion battery
- The battery icon is solid red when there is:
    o less than 3.10V for disposable Lithium battery
    o less than 3.40V for rechargeable Lithium-Ion battery

> You must change your battery immediately when the indicator turns red. Lithium batteries sustain high power for a long time, but once the power drops, it does so very fast. A red battery indicator shows that the battery power will drop to insufficient power within a few minutes.

Optimizing Battery Life

The battery life is significantly affected by the brightness setting of your display and the display colors you select. Learn more about optimizing your KAON's battery in the section "Important Information About KAON's Battery".

SURFACE MENUS

Main Menu
1. Shut Off
2. Enter PIN (only if you haven't entered it yet)
3. LOCK / UNLOCK (only if the device has been unlocked)
4. Dive Planning
    4.1. Mode (Rec/Tec/Gauge)

In Rec mode…	In Tec mode…	In Gauge mode…
	4.2 Dive Setup	
	4.2.1 Conservatism	
	4.2.2 PO2 dive	
	4.2.3 PO2 deco	
	4.2.4 Last deco stop	
4.3. Gas	4.3 Gases	
4.4. Compute NDL	4.4 Computer NDL	
	4.5 Runtime	
4.6. Alarms	4.6. Alarms	4.6. Alarms
4.6.1. Alarms On/Off	4.6.1. Alarms On/Off	4.6.1. Alarms On/Off
4.6.2. Depth	4.6.2. Depth	4.6.2. Depth
4.6.3. Time	4.6.3. Time	4.6.3. Time
4.6.4. Ascent Rate	4.6.4. Ascent Rate	4.6.4. Ascent Rate
4.6.5. Descent Rate	4.6.5. Descent Rate	4.6.5. Descent Rate
4.7. Your Saturation	4.7 Your Saturation	
4.8. Simulate Dive	4.8 Simulate Dive	4.8. Simulate Dive

5. Dive Log
    5.1. Log Summary
    5.2. Log Detail
    5.3. Depth Graph
    5.4. Temperature Graph
6. Display Settings
    6.1. Brightness
    6.2. Auto Dim
    6.3. Refresh
    6.4. Layout
    6.5. Velocity
    6.6. Stopwatch DF (this setting applies only to Gauge mode)
    6.7. Dark Mode (this setting applies only to Gauge mode)
    6.8. Analog Clock
    6.9. Show Hours
    6.10.   Colors
    6.11.   Simulate Dive

1. Shut Off

Choosing this menu option will put your KAON in Sleep Mode, which is designed to use minimum battery. The KAON will still wake up when tapped 3/5 times. It will also still keep track of surrounding pressure so it can wake up once you enter the water.

2. Enter PIN

This is where you enter the free PIN you receive upon registering your KAON unit. There is a step-by-step description of the PIN entry process in the Entering Your Free Software Activation PIN, Setting Time/Date and Battery Type section of the manual. You may be required to re-enter this PIN after a software update, so please keep a written record of it for reference.

3. LOCK / UNLOCK

This menu item allows you to lock all your menu settings so they cannot change accidentally due to random shaking e.g. during a bumpy ride to the dive site or knocking around in your backpack.

To lock, just select the "LOCK" menu item by tapping on the side of your unit. Your KAON is now locked, and the menu item changes to "UNLOCK"

To unlock, just select "UNLOCK" by tapping on the side of your unit. You will have to enter the unlock sequence. It is "123" and you input it in the same way as you input your PIN number (refer to Entering Your Free Software Activation PIN, Setting Time/Date and Battery Type if you have trouble entering the number). The screen will also remind you how to perform the unlock sequence. The unlock sequence prevents random unlocking of the unit – it is very improbable that random shakes will input that sequence.

4. Dive Planning

This whole submenu is devoted to planning your dive – here you can set up your unit for Rec, Tec or Gauge Mode diving, you can enter your gases, set up alarms and compute your No Deco Limit (NDL) or you decompression ascent schedule. Your NDL or decompression schedule computations will match what the KAON will display during your dive, provided you follow your dive plan precisely.

4.1 Mode (Rec/Tec/Gauge)

This menu item allows you to select between Rec, Tec or Gauge mode of operation. The default setting is "Rec Mode", and the default gas is "Air".

Rec Mode
In Rec mode, the KAON functions as a one-gas computer. The default mix is Air. You can set any mix from 21%-40% oxygen, including common mixes such as Air (21%), 32% nitrox or 36% nitrox.

In this mode, the KAON's primary function is to provide you with your No Decompression Limit (NDL), i.e., the amount of time you can spend diving without incurring any decompression. If you complete your dive within the NDL period, the KAON will prompt you to complete a Safety Stop for 3 minutes at 5m / 15ft. If, at any time during these 3 minutes, you drop below 6.5m / 21ft, the safety stop counter will turn off and reset. It will begin again once you return to the safety stop depth of 5m / 15ft.

Should you continue diving beyond your NDL time – **and you should only do this if you have knowledge of decompression diving and sufficient gas to complete the dive safely** - the KAON will start calculating your decompression obligation and indicate the depth and duration of any decompression stops you need to complete to exit the water safely. The unit calculates your NDL or your deco plan using Bühlmann ZH-L16C[1], with Conservatism set by default to the highest level possible on the KAON (equivalent to level "2" in Tec mode).

<div style="background:yellow">

WARNING:
ALWAYS dive based on sufficient gas remaining, NOT No Decompression Limit time remaining

Your KAON only provides decompression information
i.e. the amount of time you can dive with no decompression (your No Decompression Limit, NDL)
or, if you exceed your NDL, the KAON will tell you your decompression plan

Your KAON does NOT provide information on "air-time remaining"
It is not connected to your tank in any way and does not provide any information about air-time remaining. You must use your submersible pressure gauge (SPG) to monitor the gas level remaining in your tank, and you should always ensure you have sufficient gas to complete your dive safely.

You should ALWAYS begin your ascent so you have sufficient gas to complete your dive
This may occur BEFORE your No Decompression Limit runs out.
Please dive based on sufficient gas remaining, NOT no decompression limit time remaining.

</div>

Tec Mode
In Tec mode, the KAON allows up to three nitrox gas mixes, each from 21%-100% oxygen. The first mix will be your Dive Gas, the second and third will be Deco Gas 1 and Deco Gas 2.

In this mode the KAON assumes you are planning to incur some decompression obligation and gives you control over a number of extra settings, such as your level of Conservatism, your Dive PO2 and Deco PO2 levels, and the depth of your Last Deco Stop (please see the relevant sections of the Dive Setup menu for mode information). You will also have the option to setup and review your Runtime.

Please note that when you switch from Rec mode to Tec mode for the first time, you will be prompted to enter your desired level of conservatism with this "Warning" screenshot. Tap Left to exit this screen.
You can edit your conservatism by going to "Dive Setup > Conservatism" menu item. The default setting is "2". For more information on levels of conservatism, please review the "Conservatism" section of the "Dive Setup" portion of this manual.

During your dive, the KAON will begin by displaying your No Decompression Limit (NDL). If you complete your dive within the NDL time, the KAON will tell you to complete a safety stop for 3 minutes at 5m/15ft. During these 3 minutes, if you drop below 6.5m/21ft, the safety stop counter will turn off and reset. It will begin again once you return to the safety stop depth of 5m/ 15ft.

Should you continue diving beyond your NDL time – **and you should only do this if you have knowledge of decompression diving and sufficient gas to complete the dive safely** - the KAON will start calculating your decompression obligation and indicate the depth and duration of any decompression stops you need to complete to exit the water safely. The unit calculates your NDL or your decompression plan using Bühlmann ZH-L16C[1], with one of three possible levels conservatism (please see the Dive Setup > Conservatism section of the manual for more information)

Gauge Mode
In Gauge mode, the KAON acts as a bottom timer and provides information on dive depth and time. It does not keep track of your No Decompression Limit, decompression obligations or tissue saturation.

IMPORTANT NOTE ON SWITCHING TO/FROM GAUGE MODE
In Gauge Mode, surface off-gassing continues when the device is above water. Once the device is underwater, all deco calculations are suspended. When switching from Gauge Mode to Rec/Tec Mode, the deco information will no longer be accurate, since previous tissue values are used. When you switch out of Gauge Mode, you will see this warning:
Tap Left to continue.
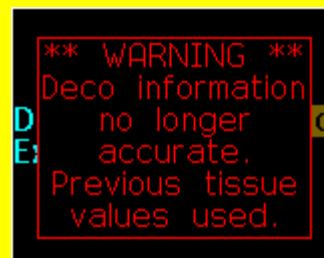
Here is an example of a situation where this warning may arise:
    Dive 1: KAON in Rec or Tec mode, switch to Gauge mode
        Surface interval – KAON continues to track your post-Dive 1 tissue saturation
    Dive 2: KAON in Gauge mode. KAON stops tracking your post-Dive 1 tissue saturation.
        Surface interval

Dive 3: KAON In Rec or Tec mode. KAON tissue saturation values are wrong!!! KAON reverts to post-Dive 1 tissue saturation values that were valid at the moment you started Dive 2. It does not account for the ongoing desaturation from Dive 1, not for the added saturation of Dive 2.

4.2. Dive Setup (only in Tec Mode)

4.2.1. Conservatism

Your KAON calculates No Decompression Limits (NDLs) or your decompression times based on the proven Bühlmann ZH-L16C[1] algorithm. This menu item allows you to add conservatism to the KAON decompression calculations using three pre-set levels:
Level "0" - standard Bühlmann ZH-L16C with no added conservatism (Gradient Factors 100/100)
Level "1" - Bühlmann ZH-L16C with some added conservatism (Gradient Factors 30/85)
Level "2" - Bühlmann ZH-L16C with more added conservatism (Gradient Factors 30/75)

4.2.2. PO2 dive

Here you can setup the maximum PO2 for your Dive Gas. This will define how deep your Dive Gas will still be considered breathable. The default (and maximum) value is 1.40. You can set it to any value between 1.0-1.40 bar, in 0.05 increments.

4.2.3. PO2 deco

Here you configure the maximum PO2 for your Deco Gas. This will define how deep your Deco Gas will still be considered breathable. The default (and maximum) value is 1.60. You can set it to any value between 1.0-1.6 bar, in 0.05 increments.

4.2.4. Last deco stop

Here you can set up the depth of your last decompression stop. The default value is 3m / 10 ft, but you can also set it to 6m / 20ft, so you won't be affected as much by wave action during your last stop. Please note this will only affect the depth of you last decompression stop if you incur decompression during your dive. This will NOT affect the depth of the safety stop in a No Decompression dive (3 minutes at 5m / 15 ft)

4.3. Gases (only in Rec & Tec Modes)

Here you can configure your one gas in Rec Mode, and up to three gases in Tec Mode.
Rec Mode
The default gas in Rec Mode is "Air":

To modify it, tap Left and the cursor will highlight the gas:

Then tap Up to increase the oxygen % to your desired value. The gas will switch from "Air" to 22%, then 23% and so on with each upward tap. The maximum value is 40%.

Once you have reached your desired value, say 32%, tap Left again and the value will be set.

Tec Mode
The default Dive Gas in Tec mode is "Air".
The default setting for Deco Gas 1 & 2 is "Off"

By tapping into the various menu items, you could set up this sample gas setup:
Dive Gas: Air
Deco Gas 1: Nx 50
Deco Gas 2: O2

4.4. Compute NDL (only in Rec & Tec modes)

This computes the No Decompression Limit you can expect at a given depth. The depth values can be provided in feet or metres, depending on the <u>Units</u> you select in the <u>Preferences</u> menu of the KAON.

In Rec Mode, these values will only be affected by the gas you select:

NDL on Air   **NDL on 36% Nitrox**

In Tec mode, these values will be affected by the gases you select and the level of conservatism.

4.5. Runtime (only in Tec mode)

In this section you can enter your dive plan and see what ascent schedule will KAON compute underwater, assuming that you follow the dive plan precisely. You can configure two types of waypoints:

- *Normal*: where you set a target Depth and a Time spent at that depth, and your KAON uses this information to create a dive plan
- *Switch*: where you set a target Depth and a Gas you want to switch to at that depth, and your KAON uses this information to create a dive plan

Here's how you can use this feature. Let's assume you have set up 3 gases: Dive Gas: 32%, Deco Gas 1: Air, Deco Gas 2: 100% O2.

If you are diving a typical "square" profile, where you descent to a certain depth and stay there for a certain period of time before heading up, all you will need to create is one "Normal" waypoint to get an estimated dive/decompression plan.

Ex: "Square" Profile
Set up a Normal waypoint at 20m (ca. 65 ft) on 32% for 20 minutes. Your KAON suggests a switch to O2 at 7m (ca. 23 ft) and a total dive time of 21:59
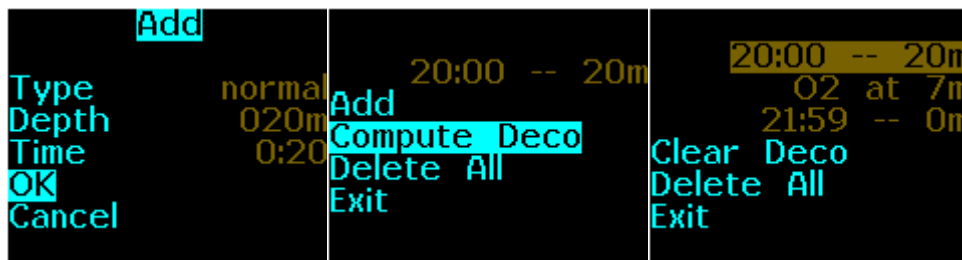
If you plan to dive a multi-level dive on one gas, you will need to set several "Normal" waypoints to describe your dive and get an estimated decompression plan.

Ex: "Multi-Level" Profile
You already have a waypoint set up at 20m for 20 mins breathing 32% nitrox. Instead of selecting "Compute Deco", you "Add" a waypoint at 30m for an additional 10 mins. Then select "Compute Deco". Your KAON suggests a switch to O2 at 7m and a total dive time of 32:59.
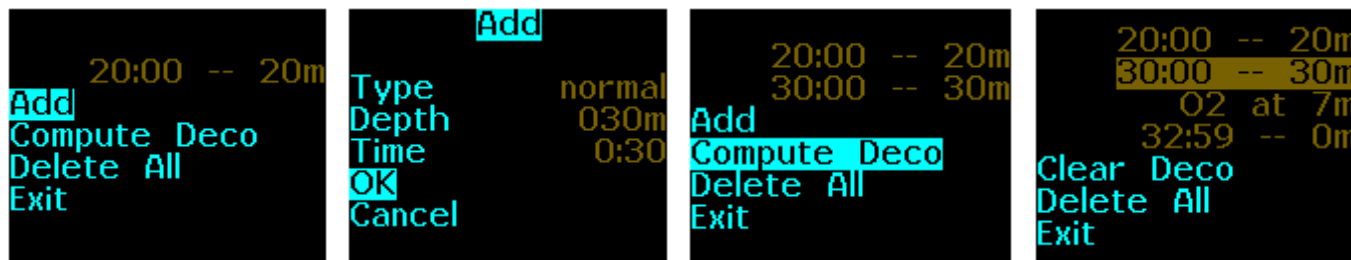
If you plan to dive a multi-level dive with different mixes for each level, you will need to set a "Switch" waypoint to tell your KAON to plan a gas switch. Let's say that after 20m for 20 mins breathing 32% nitrox, you would like to spend 10 minutes at 40m (ca. 130 ft) and would like to breathe Air there. Then you would set up two "Normal" waypoints, and add a "Switch" waypoint:

As you can see, in this last example, your KAON provides a dive plan where you breathe 32% during your dive leg at 20m, then descent to 40m and switch to Air. Once you begin your ascent, it recommends that you switch to 32% nitrox at 35m and then to O2 at 7m. Your total dive time is 38:18.

A few things to keep in mind…

Your KAON assumes your first waypoint is depth "0" and time "0".

When preparing your dive plan, your KAON uses the ascent/descent rates configured in the Ascent Rate/Descent Rate submenu of the Alarms menu. For example, if your first waypoint is 20 minutes at 30m (ca. 100ft), and your Descent Rate Alarm is set to the default of 30 mpm, then your KAON will assume you spend the first minute of your dive traveling to your target depth, and only spend 19 minutes at the target depth.

If you have recently been diving, and are still saturated from those dives, there will be an additional item in the Runtime submenu, which is "Remain. SI", or "Remaining Surface Interval". Here you can configure the number of hours and minutes that you plan to stay at the surface, before going on the dive that you are planning.

One other thing to remember is that the "Compute Deco" feature might produce unexpected (and wrong) results if you manually enter waypoints that are breaching your decompression ceiling. As an example: if you enter a 90m / 300ft waypoint, after which your decompression should start at 42m / 140ft, but you manually overwrite it by creating next waypoint at 30m / 100ft, then you would get erroneous decompression computations.

4.6. Alarms

Your KAON can display visual alarms when you exceed any of the following parameters:
- Maximum depth
- Maximum dive time
- Maximum ascent rate
- Maximum descent rate
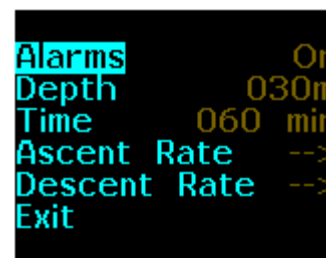
When the alarm is activated for any parameter, that piece of information will start blinking on your screen for one minute. If you do not correct the situation within one minute, the parameter display will invert (i.e. it will appear as black letters on colored background) until you correct situation causing the alarm. Once you do that, the alarm will turn off.

The only exception is a time alarm. It will blink for 1 minute, after which it will go back to normal. The reason for this is that you cannot correct the fact that you exceeded your maximum time.

4.6.1. Alarms On/Off

The default setting for Alarms is "On". Selecting "Off" allows you to turn all the alarms off entirely. If you select "Off", even if some alarm limits are exceeded, you will not see ANY alarm. The use of this option is discouraged.

4.6.2. Depth

Here you can set the depth at which you want your Depth alarm to activate. The default is 30m/100ft.

4.6.3. Time

Here you can set the time at which you want the Time alarm to activate. The default is 60 minutes. One use for this feature could be to remind you that your maximum bottom time has been reached.

4.6.4. Ascent Rate

Here you can create a set of ascent rate rules. You can set up to 5 different rules.

The first rule is the one with "Start" on the left. This will apply at all depths of your dive, unless you set additional rules. This will also be the default rule for any depths not covered by other rules. If, for example, you set it to 10 meters per minute / 30 feet per minute, and set no other rule, then at any depth, exceeding this ascent rate will cause an alarm.

Alternatively, you can add more rules, in the format "Start Depth" - "Maximum Rate". These additional rules will apply once you get **shallower** than specified depth. For example, you might choose to limit yourself to 1 meter per minute / 3 feet per minute once you're past your last deco stop, which is planned at a depth of 3 meters / 10 feet. In this case, you would set a rule "Start Depth: 10 feet" and "Maximum Rate: 3 feet per minute".
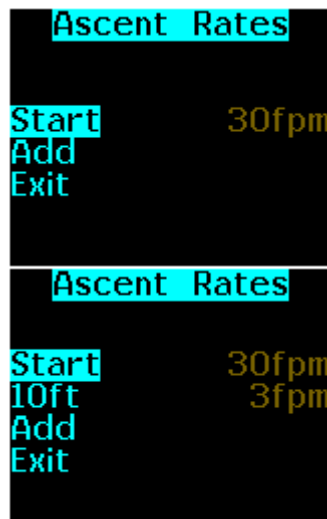
4.6.5. Descent Rate

This menu works in the same manner as the previous menu – the Ascent Rate menu. In this case, though, a rule is in effect once you're **deeper** than your specified start depth, and first rule will apply from surface downward, until you reach you next rule's start depth.

4.7. Your Saturation (only in Rec & Tec modes)

This menu item displays a screen with your current saturation:
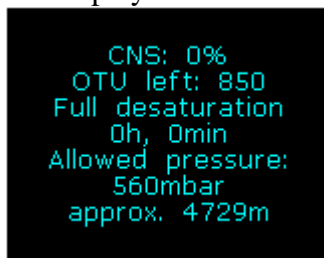
Your Saturation screen after a period of no diving   Your Saturation screen after a deep dive
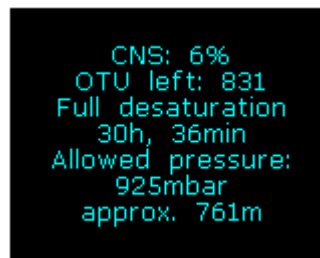
- Your current CNS (Central Nervous System) oxygen saturation (refer to Oxygen loading section)
- OTU (Oxygen Toxicity Units) left for today (refer to Oxygen loading section)
- Time to full desaturation from inert gases
- Your theoretical allowed pressure, and the altitude to which it corresponds

The theoretical allowed pressure refers to tolerated ambient pressure, calculated with the Bühlmann ZH-L16C algorithm[1]. It is a strictly theoretical calculation, and you should not use it as a definite way to figure out when is it OK to fly or drive into the mountains. It is provided as an additional point of reference for your decision about going into higher altitude. Use your training agency's and/or DAN guidelines about flying after diving. The corresponding altitude is yet another theoretical calculation, based on average pressures at altitudes.

4.8. Simulate Dive

This item is here so you can experiment with ascent schedule calculations, gas switches, emergency modes, etc., without getting yourself or your KAON wet. When you enter "Simulation", it will open sub-menu asking you for depth and time of the dive, its speed (whether it's normal – 1x, or faster – 2x, up to 4x faster than normal), and then you can select "Start".

A couple of things to note about the KAON simulator:
- The simulator follows descent and ascent rate limits
- It takes a moment to turn on, since the simulation starts at 0m / 0ft but the KAON considers a dive after divers descends below 1.6m / 5.2ft
- If the time you set is too short to reach the specified depth, the simulator will just keep descending for the allotted time, and then start ascending without reaching the depth you specified
- Please note that the Auto Dim option is not available during a simulation

You can stop the simulation at any time by tapping the unit 3/5 times to enter the underwater menus, and choosing "Stop Simulation" (to learn more, refer to the "Stop Simulation" section of the manual.)

5. Dive Log

The Dive Log keeps track of dives you did with your KAON, including their depth and temperature profiles. With use of a KAON PC Interface and related software you can download this information to your desktop or laptop (for more information on this, please read the KAON PC Interface section of the manual). Your KAON is capable of remembering hundreds of dives. Older dives, though, will not have their depth and temperature profiles available.

The number of dives recorded by the Dive Log depends on the Log Period you select. If you set the Log Period to 1 second (1s), there is space for more than 60 hours of dive profiles. This will increase substantially if you increase the Log Period. For example, with the Log Period set to 60 seconds (60s), your KAON would be capable to remember 3600 hours of dives.

To learn how to change the Log Period, refer to the Log Period section of the manual

5.1. Log Summary

In the Log Summary, you will see two things:
- a menu item called "Page"
- a list of your most recent dives

The "Page" menu item allows you to scroll through your dives page by page. At first, it will be showing "1" and the list of dives below it will be your most recent dives. If you set "Page" to "2", it will bring up the dives that occurred immediately before that. As you increase the Page number, you will see a list of older and older dives.

The list of dives will display a short summary of each dive, that is, the date and time of the dive. Scroll down to highlight a particular dive, and you will also see its maximum depth and duration at the bottom of the screen. If you select a particular dive, you will enter its Log Detail page.

5.2 Log Detail

In this page, you will see more detailed information on the selected dive. Below is a list of data you will see, in the same order as it will be displayed:

- Dive No – the number of this dive, numbered in the sequence that it occurred
- Max Depth
- Avg. Depth – this is average depth of your whole dive, so if you have reset average depth during the dive, it won't affect this number
- Duration – dive time, in hours and minutes
- Date – day of the month, month and year of the dive
- Time – the time of day at which you entered the water
- Min. Temp. – minimum temperature over the whole duration of the dive
- Max. Temp. – maximum temperature over the whole duration of the dive
- Surf. Int. – the surface interval since last dive
- CNS start – the central nervous system oxygen saturation, in percent, at the beginning of the dive
- CNS finish – the same value at the end of the dive
- OTU – oxygen toxicity units acquired throughout the duration of this dive
- Depth Graph – by choosing this option, you will see depth profile of your dive
- Temp. Graph – by choosing this option, you will see temperature profile

5.3. Depth Graph

The depth graph spans whole width of the screen, with the start of the dive at the left-most part, and the end of dive at the right-most part. The top of the screen represents the surface of the water, and the bottom of the screen represents the maximum depth reached (this number is also printed on the screen). By tapping, you exit back into the "Log Detail" menu.

5.4. Temperature Graph

The temperature graph also spans whole width of the screen, with start of dive at the left-most part, and the end of dive at the right-most part. There are two numbers printed on the screen, one in bottom-left – that is temperature represented at the bottom of the screen, and one in top-left – that is temperature represented at the top of the screen. By tapping, you exit back to the "Log Detail" menu.

6. Display Settings

This is a series of settings you can use to personalize your KAON's display.

6.1. Brightness

The "Brightness" setting has three levels – low, medium and high. The darker the water, the lower brightness you need to see your display clearly. Also, you might find high brightness in the dark water too bright – that is, it could emit too much light, compared to environment you're diving in. On the other hand, in clear, shallow water, with lots of sunlight, you will need high brightness to see the display properly. Keep in mind that higher brightness burns more battery, so you should select the lowest brightness that meets your needs on a given dive.

6.2. Auto Dim

You can use the "Auto Dim" feature to fine-tune the brightness of your display. If you need high brightness on the surface and lower brightness at depth, you do not need to adjust it manually. Instead, you can set your "Auto Dim" setting to the depth at which you want your display brightness to be reduced to Low. By using the "Auto Dim" feature, here is what will happen:

- At the surface, display brightness will be at the setting chosen in the "Brightness" menu
- Once you reach your Auto Dim depth, and below, the brightness will switch to Low

- Between these two, the brightness will decrease linearly with depth (e.g., at half of the Auto Dim depth, it will be halfway between the surface brightness setting, and Low)

If you set your Brightness setting to "Low", the Auto Dim feature will have no effect.

The default Auto Dim setting is "Off". You can adjust it in 10m / 30ft increments.

6.3. Refresh

Your KAON display refreshes every fraction of a second – this allows it to update the information on the screen. You can either set refresh rate to "Normal" or "Fast". The default setting is "Normal". In most cases, you will not notice the screen flicker/refresh when set to "Normal", but if you do, you can set it to "Fast". Using the "Fast" setting will shorten the battery life.

6.4. Layout

In Rec and Tec Modes your KAON comes with a two underwater display layouts "Standard" and "Graphic". When diving within the no decompression limit, both displays are identical. However, when you incur deco, the "Standard" display provides your deco information verbally "Stop" and "For", while the "Graphic" display uses the hand and clock icons.

Diving within NDL Limit   **STANDARD – in DECO**   **GRAPHIC – in DECO**

In Gauge Mode your KAON comes with a three underwater display layouts to choose from:
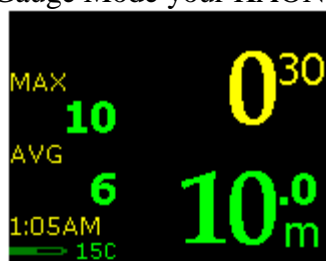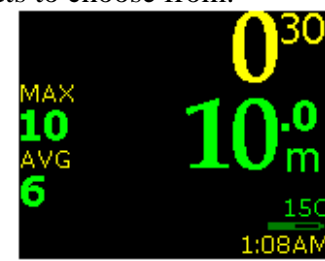
STANDARD   **SIMPLE**   **ALTERNATE**

6.5. Velocity

This setting changes whether or not ascent/descent rates will be displayed. It will show the rate as a number of meters or feet per minute, and an arrow showing whether you are ascending or descending.

Velocity off or not ascending/descending   Velocity on – descending at 30mpm (current units - metric)

6.6. Stopwatch DF (only in Gauge Mode)

While this setting is visible in the "Display Settings" menu of both Deco Mode and Gauge Mode, the stopwatch is only available when your KAON is running in Gauge Mode.

This setting lets you control whether the stopwatch will be on at the beginning of a new dive in Gauge Mode. The default setting is "Off". This means that if you want to use Stopwatch during your dive, you will need to turn it "ON" first. If you change this setting to "ON", the default behavior of the Stopwatch will be to turn on at the start of the dive. Once you turn the Stopwatch "ON", it will remain on for the remainder of the dive (unless you turn it back off). For details refer to "Stopwatch" section.

6.7 Dark Mode (only in Gauge Mode)

While this setting is visible in the "Display Settings" menu of both Deco Mode and Gauge Mode, Dark Mode is only available when your KAON is running in Gauge Mode. This option enables selecting one of three low brightness color schemes for the underwater dive screen. The default setting is "None" and the Dark Mode On/Off option is not available in the underwater menu.

There are three under water dive screen color schemes available for selection:
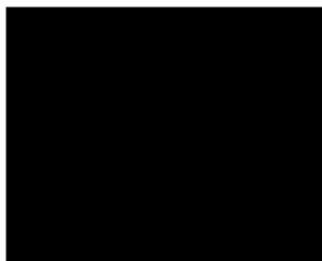
| Dark Mode : Dim | Dark Mode: Blank | Dark Mode: Stlth |
| (Data in dim green color) | (Nothing is displayed) | (Data in dim red color) |

The "Blank" mode was created on the request of cave-diving instructors, who found that the KAON's screen shone so brightly that it would illuminate the cave during a lights-out drill. The "Blank" mode allows students to turn off the screen on their KAON, without interrupting the unit's functioning.

The "Stealth" mode, which features all data in a dim red color, is designed for use at night as red has the least impact on the quality of your night vision.

The "Dim" mode, which features all data in a dim green color, can also be used at night to preserve your night vision, or as an ultra-battery-savings measure in low-light conditions.

6.8. Analog Clock

This setting affects how the seconds portion of your dive time is displayed. By selecting "Off", you will have the seconds value printed as a number on your display. By selecting "On", you will see a graphical indication of the seconds elapsed: a bar display filling up over time to a full minute.
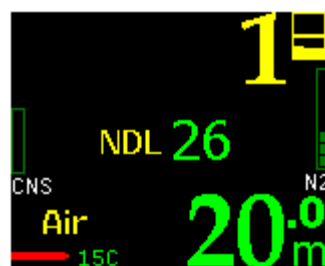
Analog Clock: OFF   **Analog Clock: ON**

6.9. Show Hours

This setting affects how your total dive time will be displayed. By selecting "Off", you will have the dive time shown as minutes:seconds, with the minutes value exceeding 60 once more than an hour has elapsed. By selecting "On", you will have the dive time show as hours:minutes:seconds, with the minutes value only reaching 59 before being converted into 1 hour and 0 minutes.

Show Hours: OFF   **Show Hours: ON**

6.10. Colors

Choosing this option will take you to entire sub-menu, where you can choose colors for different parts of your display. You can set the colors of the following values:

- Depth
- Total dive time
- Maximum depth
- Maximum depth label ("MAX" printed on the screen)
- Unit label
- Gas / Setpoint
- Time of day
- Temperature
- Depth units
- Menu text
- Menu parameters

Scroll down to the value you wish to change by tapping "Down". Tap "Left" to move the cursor over to the color indicator for that value. You can then scroll through all available colors by tapping Up or Down. Once you reach a color that you like, you can tap "Right" to return to the list of values. Once you have completed all the changes you wish to make, scroll all the way down until you reach "Exit".

6.11. Simulate Dive

The final item in the "Display" menu is "Simulate Dive". This is so you can test all your display settings, without getting yourself or your KAON wet. When you enter "Simulation", it will open sub-menu asking you for depth and time of the dive, its speed (whether it's normal – 1x, or faster – 2x, 4x, etc., up to 16x faster than normal), and then you can select "Start".

A couple of things to note about the KAON simulator:
- The simulator follows descent and ascent rate limits
- It takes a moment to turn on, since the simulation starts at 0m / 0ft but the KAON considers a dive after divers descends below 1.6m / 5.25ft
- If the time you set is too short to reach the specified depth, the simulator will just keep descending for the allotted time, and then start ascending without reaching the depth you specified
- Please note that the Auto Dim option is not available during a simulation

You can stop the simulation at any time by tapping the unit 3/5 times to enter the underwater menus, and choosing "Stop Simulation" (to learn more, refer to the "Stop Simulation" section of the manual.)

7. Preferences

In this menu, you are able to adjust and fine-tune settings of your device. You are probably going to use this menu only once, before you start diving with your KAON.

7.1. Units

Here, you can choose the units in which data will be displayed on your KAON:
  - Metric units: meters, meters per minute, Celsius
  - Imperial units: feet, feet per minute, Fahrenheit

7.2. Log Period

The Log Period is the frequency with which dive data will be saved to memory. Your KAON collects depth and temperature data for each dive. If you chose a Log Period of 2 seconds, then your KAON will store depth and temperature data to memory every 2 seconds.

The number of dives recorded by the KAON's Dive Log depends on the Log Period you select. If you set the Log Period to 1 second (1s), there is space for more than 60 hours of dive profiles. This will increase substantially if you increase the Log Period. For example, with the Log Period set to 60 seconds (60s), your KAON would be capable of remembering 3600 hours of dive time.

7.3. Tap Sensitivity

You can set Tap Sensitivity to Low or High. This allows you to adjust how softly or firmly you must tap your KAON for it to react. High sensitivity means it will be very sensitive and react to light taps. Low sensitivity means it will be less sensitive and react to stronger taps only.

Some divers like to set their Tap Sensitivity to Low when in caves or wrecks to prevent accidental bumps on the surrounding rock or wreck to launch their unit into menu mode.

7.4. Tap Count

You can set this either to "3" or to "5". By choosing either of these, you set the number of taps that will wake up your KAON from Sleep Mode, and the number of taps that will take you to the menus.

The default setting is "3". Some divers find that the KAON can wake up at random due to a bumpy ride to a dive site or due to accidental impacts during a dive in a closed environment, for example. In those cases, we recommend changing the setting to "5".

7.5. Minimum Dive

This allows you to control the minimum dive time required for the dive to be classified as an actual dive. For example, if you set it to 1 minute, then any dive shorter than that will not be logged. You can control this number in increments of 10 seconds. Minimum value is 0, maximum – 600 seconds.

7.6. Minimum Surface Interval

This allows you to control the minimum time of surface interval before next dive is classified as new dive. If you stay on the surface for shorter time than the specified interval, your next descent will still be considered a part of the previous dive, and both descents will be logged as one dive. You can control this value in increments of 1 minute. Minimum value is 0, maximum – 30 minutes.

7.7. Status

If you tap into this menu setting, you will see basic information concerning your device, such as type, hardware version, software version, etc.

7.8 Battery Type

The type or capacity of the battery is needed to accurately estimate the remaining dive time.
There are three battery types available:
- White-ER14335M   (Disposable Lithium Battery)
- Blue-ER17335M   (High Capacity Disposable Lithium Battery)
- Green-ICR16340   (Rechargeable Lithium-ion Battery)

You can find more information about the different battery types in the section on Important Information About KAON's Battery

7.9 Battery Meter

This menu item allows you to select battery meter style either in battery symbol graphic or in battery voltage value. The default setting is "Symbol".

Battery Meter: Symbol

Battery Meter: Voltage

7.10 Battery Test

This menu item runs the battery test for the selected battery type and displays the estimated remaining dive time. This test will take approximately 1 minute. During the battery test, you will see the screen light up progressively with white pixels, to provide a battery reading when the unit is at maximum battery consumption.

8. Salinity

You can adjust salinity settings here. There are three available modes:
- fresh (1 kg / l, such as freshwater lake or river)
- brackish (1.012 kg / l, such as some estuaries, inland seas, etc.)
- saline (1.025 kg / l, such as open sea)

By selecting the correct salinity, you ensure that your displayed depth will be accurate. KAON, like any other depth gauge or computer, in order to measure depth, measures pressure. Depending on water salinity, there will be a slight variation in pressure at the same depth.

If you are unsure of the water salinity, choose the salinity that your dive / decompression tables were calibrated to.

9. Time/Date

In this submenu, you can set all the options connected with time and date.

9.1 12h/24h

Choose the one you prefer – the AM/PM type time format, or the 24-hour format.

9.2 Time

Time of day, displayed in hours and minutes.

9.3 Date

Month and day

9.4 Year

Current year. The year should be within period of 2010 to 2025.

9.5 Calibrate Time

The Liquivision KAON uses a silicon oscillator to keep time. Silicon oscillators are far more reliable than quartz crystals, and are used by NASA in outer space. However, they can have a "drift" that can cause your unit to gain or lose time at a predictable rate. Should your KAON be noticeably gaining or losing time, you can follow our Time Calibration Procedure to correct for your unit's drift.

To perform this procedure, you will need access to the internet and have 48 hours during which you do not need to dive your KAON. Then, take the following steps:

1. Check that there is no pre-existing time adjustment set up on your unit:
   a) Make sure your KAON is at room temperature and has a working battery in it.
   b) Enter the "Calibrate Time" menu.
   c) Make sure that the 'Daily' value is 0m00s (if not, set it to zero)
   d) Exit that menu, and then exit the main menu

2. Match your KAON's time to the time provided by the Greenwich Mean Time website:
   a) On your PC or MAC, go on the internet and visit http://www.wwp.greenwichmeantime.com/
   b) Select your time zone
   c) Make sure that the website is now showing the correct time of day for your area
   d) On your KAON, enter the "Ready to Dive" screen and note the time of day in the lower-left

e) Then, go to the "Time/Date" menu. Set the hours and minutes to the current time displayed on the website, plus one minute (if the website displays 11:45:21PM, set your KAON to 11:46PM)

f) Move the cursor to the "Exit" item on the menu but DO NOT SELECT IT. The time of day will not be 'set' in your KAON until you select "Exit" with a left or right tap

g) Watch the website time. At the moment that it hits the next minute (i.e. 11:46:00PM), then tap your KAON with a left or right tap to select "Exit"

h) Return to the "Ready to Dive" screen and observe the time of day in the lower left corner of your KAON, and compare it to the time of day on the website. When the time crosses the next minute on the website, make sure your KAON crosses that minute virtually simultaneously.

i) If they are not synchronized to within 1 second, then go back to step (2d) and repeat steps (2d-h) until your KAON is exactly synchronized with the time provided by the website.

3. After 48 hours have passed, compare your KAON's time to the website once again:

a) On your PC or MAC, go on the internet and visit http://www.wwp.greenwichmeantime.com/, select your time zone, and make sure that the website is showing the correct time of day

b) On your KAON, enter the "Ready to Dive" screen and note the time of day in the lower-left

c) Focus on the time displayed on your KAON. When the minute 'flips', immediately observe the website time and record it. For example, your KAON flips to 11:24pm, and at that exact moment the website time shows 11:26:18pm.

d) In this example, your KAON is slow by 2 minutes, 18 seconds over 48 hours. We need the error over 24 hours, so we divide by two, yielding 1 minute, 9 seconds slow per day.

4. Finally, enter the correct time calibration into your KAON

- Go to the "Calibrate Time" menu
- Enter the correction +1m09s by tapping UPWARDS to speed your KAON clock up.
- You can also slow your KAON down by tapping DOWNWARDs and setting a negative correction, e.g. -1m09s.
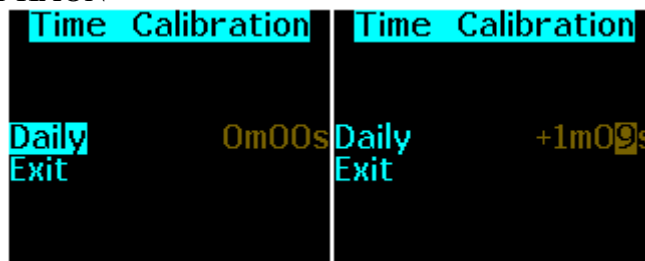
10. Connect to PC

Tap into this menu item before starting the download of your dive logs in your PC application of choice. Refer to its manual for more information.

If you tap into this item accidentally, don't worry – the wait for PC communication will time out after 30 seconds, and you will be back to main menu.

For more information on connecting to your PC, downloading your dives or uploading new software onto your KAON, please refer to the "KAON PC Interface" section of the manual.

UNDERWATER MENUS

Main Underwater Menu

When in Rec Mode…	When in Tec Mode…	When in Gauge Mode…
	1 Switch Gas	
	2 LOST GAS	
3 Silence Alarms	3 Silence Alarms	3 Silence Alarms
(when Alarms are on & triggered)	(when Alarms are on & triggered)	(when Alarms are on & triggered)
		4 Stopwatch
		5 Reset AVG
		6 Dark Mode On/Off
		(only if "Dark Mode" is
		activated in the Surface Menus)
7 Display	7 Display	7 Display
7.1 Brightness	7.1 Brightness	7.1 Brightness
7.2 Auto Dim	7.2 Auto Dim	7.2 Auto Dim
(only if "Auto Dim" is activated in	(only if "Auto Dim" is activated in	(only if "Auto Dim" is activated in
the Surface Menus)	the Surface Menus)	the Surface Menus)
7.3 Layout	7.3 Layout	7.3 Layout
8 Stop Simulation	8 Stop Simulation	8 Stop Simulation
(only if running simulator)	(only if running simulator)	(only if running simulator)

1. Switch Gas (only in Tec Mode)

This menu item appears only when you are in Tec mode.

In the surface menus, you can configure your gas settings (see Gases menu item). When you tap into this submenu, you will see list of gases that are allowed for the depth you're at. This list is based on:

- your max PO2 settings (see Dive Setup menu item), and
- your gas settings. A gas set in "Dive" mode will use "PO2 dive" as maximum PO2, while a gas set in "Deco" mode will use "PO2 deco" as maximum PO2

The gases will be listed from one with the lowest content of O2 to the one with the highest. This list will only display gases that are configured as "Dive" or "Deco" gases. If, at the time you enter this menu, there is a "Best Gas" for you to switch to, this gas will be indicated with an asterisk (*). In this example, the computer is recommending a switch to 50% Nitrox:
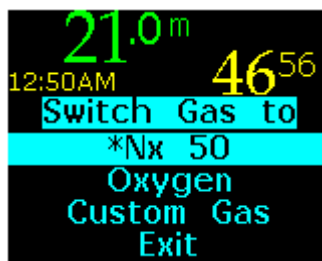
Finally, there is an option called "Custom Gas", with which you can configure an additional gas underwater. Doing this while diving is very troublesome, so we highly recommend that you take steps BEFORE the dive to avoid using this option. The best thing is to input the main gases you and your buddies are taking underwater, so that they are ready to switch to in case of an emergency.

2. LOST GAS (only in Tec Mode)

This menu item appears only when you are in Tec mode.

If you have lost a gas that was to be used later for decompression, it is very important to use this menu option to mark it as "Lost". This will prevent this Lost Gas from being used in ascent schedule planning. If you fail to do this, your ascent schedule will be wrong, as the KAON will assume that you can still use that gas. The gases will be listed from the one with the highest content of O2 to the one with the lowest.

EXAMPLE: Let's say you are planning to use Air and Nx50 on your dive, and let's say your deco time would be 30 minutes on Air and only 20 minutes on Nx50. If you were to lose Nx50, but not mark it as "Lost", then your KAON would tell you that your total Time To Surface is 20 minutes, because it would think that you can still use the Nx50. However, as long as you keep your KAON set to Air throughout your decompression, the KAON will continuously adjust its calculations, and in effect will keep you decompressing for 30 minutes.
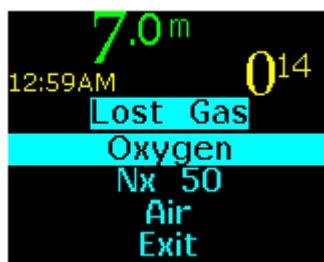
3. Silence Alarms

If an alarm is annoying you, *and you are confident that you should continue the violation that is causing the alarm*, you can switch that alarm off. Choosing the "Silence Alarms" option will cause ALL of the alarms that are on at that moment to be silenced until the end of the dive.

Alarms you can silence are:
- Depth alarm
- Time alarm
- Ascent/Descent Rate alarm

Other alarms, i.e. deco ceiling alarm and gas-related alarms cannot be silenced.

For example, if you have exceeded your maximum depth and time alarm settings, both of these alarms will be on. If you choose to "Silence Alarms", you will turn both of these alarms off and neither of them will be displayed on this dive anymore – no matter what depth you go to or how long you stay there for. However, if you exceed your maximum ascent rate on the same dive, it will still cause an alarm.

Keep in mind that the descent and ascent rate alarms are the same alarm – if you silence the descent rate alarm on the way down, you will not see alarm go off if you ascend too fast on the way up!

Use of the "Silence Alarms" option is discouraged. If you decide to use alarms, set, and then exceed them – this means you exceed limits of your dive plan, and put yourself at a very serious risk. Always dive your plan.

4. Stopwatch (only in Gauge Mode)

This menu item appears only when you are in Gauge mode.

The "Stopwatch" is a timer that you can turn on and off, start, pause, and restart during your dive. Here is how it appears in each of the three screen layouts:
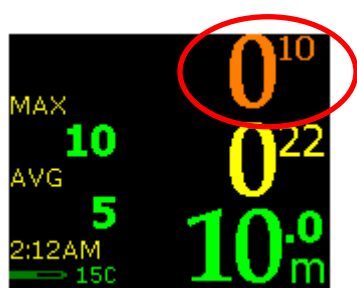
Display Layout: STANDARD   Display Layout: SIMPLE   Display Layout: ALTERNATE
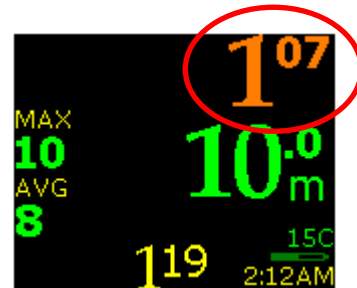
If the Stopwatch is "Off", your KAON's underwater menu has an item called "Stopwatch On". If you select this item by tapping either side of your KAON unit, you will activate the Stopwatch function and you will see your dive display rearrange itself – it will show the Stopwatch in addition to the information it was previously displaying.

When the Stopwatch function is "On" and you return to the underwater menus, you will see a menu item called "Stopwatch", and this takes you to the submenus that control the use of the stopwatch.

Stopwatch Shortcut: if the Stopwatch is "On", then by tapping three/five times on a SIDE (not the top) of your KAON, you will be taken directly to the stopwatch sub-menu:

- Stop / Start: depending on whether the Stopwatch is running or paused at the moment, this will either say "Stop" or "Start". Choosing "Stop" will pause the stopwatch if it is running, and "Start" will re-start the stopwatch, if it is paused. Initially, when you turn the Stopwatch on for the first time during your dive, it is paused.
- Reset: this will set your Stopwatch count to 0. If the Stopwatch is running, it will keep running – now, counting again from 0.
- Off: this will pause the Stopwatch and turn it off. The dive display will return back to normal. If you turn your stopwatch back on later, it will have same count as when you turned it off.

Bear in mind, that to make it easier for you to operate the stopwatch, the items in the stopwatch submenu change order:

- If the stopwatch is running, first item is "Reset", and second item is "Stop".
- If the stopwatch is not running, first item is "Start", and second item is "Start".

5. Reset AVG (only in Gauge Mode)

This option is only available in Gauge Mode.

It will reset the average depth that has been calculated from the beginning of the dive, and it starts calculating it from this point onwards. Keep in mind, however, that the average depth in your dive log will be average depth over the whole dive.

6. Dark Mode On/Off (only in Gauge Mode & only if Dark Mode is activated in the Surface Menus)

This option is only available in Gauge Mode.

This underwater option turns on or off the low brightness color scheme you have pre-selected during your surface dive preparation (please refer to the "Dark Mode" section of the manual for more information).

Once you turn Dark Mode "On", depending on the color scheme you selected on the surface, your screen will either go blank, or will show all data in dim red or dim green. To exit Dark Mode, tap the unit three or five times. This will take you into the underwater menu that will allow you to turn Dark Mode "Off".

7. Display

You can adjust a limited set of display features underwater.

7.1. Brightness

The "Brightness" setting has three levels – low, medium and high. The darker the water, the lower brightness you need to see your display clearly. Also, you might find high brightness in the dark water too bright – that is, it could be too much light, compared to environment you're diving in. On the other hand, in clear, shallow water, with lots of sunlight, you will need high brightness to see the display properly. Keep in mind that higher brightness burns more battery, so you should select the lowest brightness that meets your needs on a given dive.

7.2. Auto Dim (only if Dark Mode is activated in the Surface Menus)

This underwater option turns on or off the Auto Dim feature you have pre-selected during your surface dive preparation (please refer to the "Display Settings - Auto Dim" section of the manual for more information).

You can use the "Auto Dim" feature to fine-tune the brightness of your display. If you need high brightness on the surface and lower brightness at depth, you do not need to adjust it manually. Instead, you can set your "Auto Dim" setting to the depth at which you want your display brightness to be reduced to "Low". By using the "Auto Dim" feature, here's what will happen:
- At the surface, display brightness will be at the setting chosen in the "Brightness" menu
- Once you reach your Auto Dim depth, and below, the brightness will switch to "Low"
- Between these two, the brightness will decrease linearly with depth (e.g., at half of the Auto Dim depth, it will be halfway between the surface brightness setting, and "Low")

If you set your Brightness setting to "Low", the Auto Dim feature will have no effect.
The default Auto Dim setting is "Off". You can adjust it in 10m / 30ft increments.

7.3 Layout

You have the option to switch between display layouts underwater.

In Rec and Tec Modes your KAON comes with a two underwater display layouts "Standard" and "Graphic". When diving within the no decompression limit, both displays are identical. However, when you incur deco, the "Standard" display provides your deco information verbally "Stop" and "For", while the "Graphic" display uses the hand and clock icons.

Diving within NDL Limit

STANDARD – in DECO

GRAPHIC – in DECO

In Gauge Mode your KAON comes with a three underwater display layouts to choose from:

STANDARD

SIMPLE
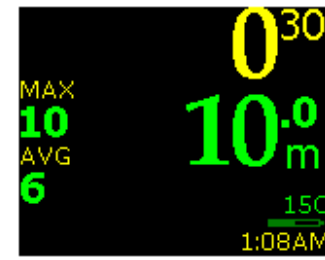
ALTERNATE

8. Stop Simulation

This option is displayed only if you are "underwater" in a simulated dive (to learn more about dive simulation, please refer to the "Simulate Dive" section of the manual). In such a case, choosing this will immediately stop simulation, and return back to the surface menus.

DIVING WITH YOUR KAON IN REC MODE

Overview

Your KAON has a wide set of features that can assist you with your dive planning and preparation. The most basic selection is the Mode you wish to use your unit in. The default is Rec Mode, and this is the Mode we will describe in this section.

In Rec mode, the KAON functions as a one-gas computer. The default mix is Air. You can set any mix from 21%-40% oxygen, including common mixes such as Air (21%), 32% nitrox or 36% nitrox.

In this mode, the KAON's primary function is to provide you with your No Decompression Limit (NDL), i.e., the amount of time you can spend diving without incurring any decompression. If you complete your dive within the NDL period, the KAON will prompt you to complete a Safety Stop for 3 minutes at 5m / 15ft. If, at any time during these 3 minutes, you drop below 6.5m / 21ft, the safety stop counter will turn off and reset. It will begin again once you return to the safety stop depth of 5m / 15ft.

Should you continue diving beyond your NDL time – **and you should only do this if you have knowledge of decompression diving and sufficient gas to complete the dive safely** - the KAON will start calculating your decompression obligation and indicate the depth and duration of any decompression stops you need to complete to exit the water safely. The unit calculates your NDL or your deco plan using Bühlmann ZH-L16C[1], with Conservatism set by default to the highest level possible on the KAON (equivalent to level "2" in Tec mode).

<div style="background-color: yellow; border: 2px solid black; padding: 1em;">

<u>WARNING:</u>
<u>ALWAYS dive based on sufficient gas remaining, NOT No Decompression Limit time remaining</u>

Your KAON only provides decompression information
i.e. the amount of time you can dive with no decompression (your No Decompression Limit, NDL)
or, if you exceed your NDL, the KAON will tell you your decompression plan

Your KAON does NOT provide information on "air-time remaining"
It is not connected to your tank in any way and does not provide any information about air-time remaining. You must use your submersible pressure gauge (SPG) to monitor the gas level remaining in your tank, and you should always ensure you have sufficient gas to complete your dive safely.

<u>You should ALWAYS begin your ascent so you have sufficient gas to complete your dive</u>
This may occur BEFORE your No Decompression Limit runs out.
<u>Please dive based on sufficient gas remaining, NOT no decompression limit time remaining.</u>

</div>

WARNING
NEVER undergo a decompression dive without proper training

NEVER EXCEED the KAON's No Decompression Limit unless you have training in decompression diving.

WARNING
ALWAYS have a backup source of decompression information
Do not rely on the KAON as your as a definite or single source of decompression information.

Both the KAON Dive Planning and In-Water Decompression Calculations likely still have bugs. We have looked for them and tried to eliminate them, but they can still appear during use. Bugs can cause the unit to provide inaccurate or incomplete information, or cause the unit to reset or turn off and stop providing any information at all.

You should always check for software updates
(www.liquivision.com/downloads/KAONSoftwareHistory.php)
and install all applicable updates, every time you prepare to use the KAON.

You must have a plan to handle a KAON dive computer failure during your dive. Do not risk your life on only one source of information.

Setting Up a Dive In Rec Mode

Once you have Unlocked your KAON, and set up the required Time/Date and Battery information, setting up your first dive in Rec mode is very simple. All you need to do is:

1. Set up Metric/Imperial Units. Go to the "Preferences > Units" menu item and make your selection.

2. Set up your dive gas. The default is "Air". You can change it to any nitrox mix from Air (21%) to 40% oxygen by following the instructions in the "Dive Planning > Gases" section of this manual.

3. Compute your No Decompression Limit (NDL) times. Entering the "Dive Planning > Compute NDL" menu item will create a chart with the amount of time you can spend at a given depth without incurring any decompression. For example, if you select "Air" as your dive gas, your NDL at 15 m (about 45 ft) will be 57 minutes. This can help you plan the amount of gas you take on your dive.

4. Set up your Alarms by accessing "Dive Planning > Alarms". The default settings are:
- Alarms "On"
- Depth: 30 metres (100 feet)
- Time: 60 minutes
- Ascent Rate: 10 metres per minute (30 feet per minute)
- Descent Rate: 30 metres per minute (90 feet per minute)

5. *Run a Dive Simulation*. This feature, found in "Dive Planning > Simulation" allows you to create a dive simulation for a desired depth and time, at up to 4x normal speed. This lets you:

- Double-check all your dive settings (e.g. to catch that you have a depth alarm set to 30 m / 100 ft while you plan to dive to 40 m / 130 ft).
- Pre-view the dive screen Layout, and familiarize yourself with the location of key pieces of information.
- Practice accessing the Underwater Menus, and familiarize yourself with the options available to you there.

6. *Exit all menus, then select "Shut Off – you are now ready to dive!* At the bottom of each menu screen there is the option to "Exit". Keep selecting this until you reach the main menu, then select "Shut Off" at the very top of the main menu. Your unit will go blank. You are now ready to dive!

Settings That Will Affect Your Dive

Conservatism Settings

The conservatism setting of your KAON will affect the length of your No Decompression Limit (NDL). The more conservative the setting, the shorter your NDL time. In Rec mode, your KAON is automatically set to run on its most conservative setting and, for your safety, this cannot be changed in Rec mode. This setting is equivalent to level "2" in Tec mode, which corresponds to Buhlmann ZH-L16C with Gradient Factors 30/75. Please read the Conservatism section to learn more.

Safety Stop

You should always dive within the No Decompression Limit (NDL), unless you have specific training in decompression diving. You should always begin your ascent FIRST based on having sufficient gas remaining and, if you do have sufficient gas remaining, THEN based on staying within the NDL.

When you ascend within the NDL limit, you will be asked to complete a safety stop for 3 minutes at 5m / 15ft. If, at any time during these 3 minutes, you drop below 6.5m / 21ft, the safety stop counter will turn off and reset. It will begin again once you return to the safety stop depth of 5m / 15ft.

Oxygen Loading (for enriched air/nitrox dives)

If you are diving with enriched air/nitrox, your KAON calculates your CNS (Central Nervous System) and OTU (Oxygen Toxicity Unit) loading. Your current CNS/OTU levels are easy to access through the Your Saturation menu item and the screen looks like this.

For a full explanation of CNS/OUT values, please refer to your nitrox training manual.

Entering the water

Turning Your KAON On

We recommend that you turn your KAON on yourself before you enter the water to check the remaining battery power and to make sure that all is functioning properly. You can turn it on by tapping the unit in the Down direction 3/5 times.

Otherwise, it will turn on automatically few seconds after you take it deeper than 1.6 meters / 5.25 feet.

Beginning Your Dive

When you start to descend and go below 1.6 meters / 5.25 feet, your KAON will turn into dive mode.

Dive Display

There are two underwater display layouts – Standard and Graphical. Both look the same while diving within the No Decompression Limit, but they look different if you enter into decompression.

You can edit the colors of all the items on your screen, although you should be careful to consider how the changes you make will impact battery consumpt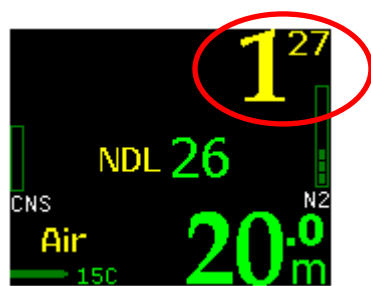ion. Refer to the Colors menu item for more information on setting colors, and to the Important Information on KAON's Battery for impact of color on power consumption.

Dive Time

The large yellow number in the upper-right-hand corner of your display (here, circled in red) is the Dive Time. Dive time is measured in minutes and seconds, starting from the moment your KAON reaches 1.6 meters / 5.25 feet. It will stop once you surface, and it will reset once you have been on the surface for more than the Minimum Surface Interval.

Diving within NDL Limit	STANDARD – in DECO	GRAPHIC – in DECO

The minutes of your dive can be displayed as follows (refer to the "Show Hours" section for details):
- minutes:seconds, e.g. 135:00
- hours:minutes:seconds, e.g. 2:15:00

The seconds of your dive can be displayed as follows (refer to the "Analog Clock" section for details):
- as a number, e.g. 135:00
- a graphical indication of the seconds elapsed: a bar display filling up to a full minute

Depth

The green number in the lower-right-hand corner of the display (here, circled in red) is your Current Depth. If you chose metric units, you will see the depth in meters, with one decimal place in smaller font. If you chose imperial units, you will see the depth in feet, with no decimal places. Please refer to the "Units" section of the manual for details on choosing units.

Diving within NDL Limit	STANDARD – in DECO	GRAPHIC – in DECO

Decompression Information Zone

The horizontal section in the middle of the screen is reserved for your No Decompression Limit or decompression information. Each number in this section has either a name or a graphical indicator. Here is a list of available data:

Diving within NDL Limit

Deco Info Zone

STANDARD: Deco Plan Showing STOP/FOR

GRAPHIC: Deco Plan Showing STOP/FOR

STANDARD: At Stop Showing STOP

STANDARD: At Stop Showing STOP

- NDL – No Decompression Limit is the maximum time you can stay at your current depth before you will incur a decompression obligation. It is displayed in minutes, and rounded down to the nearest minute. You should NEVER exceed this time, unless you have specific training in decompression diving.

- TTS – Time To Surface is total time it should take you to get to the surface, if you were to precisely follow your KAON's ascent schedule, including all the stops and recommended gas switches. It is printed in minutes, and rounded up to the nearest minute.

- STOP/FOR (Standard display) – Shown together, this pair describes the deepest decompression stop on your KAON's ascent schedule. Below "STOP" there is depth of this stop (in meters or feet, depending on your Units settings). Below "FOR" there is the stop's duration, in minutes, rounded up to the nearest minute. If you are shallower than this stop, the depth below "STOP", will blink to remind you to go deeper.

  In Graphical Display mode, STOP/FOR is shown like this: ⊘. The hand means "Stop" and the stop depth is shown beside it. The clock means "For" and the stop duration is shown beside it.

- STOP (Standard display) – Shown as a stand alone value, "STOP" shows the length of the current decompression stop on your KAON's ascent schedule when you are currently at this stop (that is, within 0.5m / 1.6ft from it). It is displayed in minutes and seconds, rounded up to 10 seconds.

  In Graphical Display mode, STOP is shown like this: ✋. The hand means "Stop" and the stop depth is shown beside it.

Graphical Decompression Stop Information

The KAON provides you with a number of graphical cues to help you execute your decompression plan correctly. The first one is a Large Arrow pointing up (picture 1), which tells you to ascend to your next deco stop. Once you get closer to your stop, you will see some Small Arrows pointing up, and the start of a Starfish (picture 2). The objective is to keep the Starfish centered in the green box – that means you are correctly holding your deco stop (picture 3). If you overshoot your deco stop, you will see Small Arrows pointing down and your STOP alarm will start flashing (picture 4).

| **1. Large Up Arrow** | **2. Small Up Arrows & start of Starfish** | **3. Hold Starfish in box!** | **4. Small Down Arrows & Stop Alarm** |

Graphical Ascent/Descent Indicators & Alarms

The KAON provides you with a number of graphical cues to help you manage your descent and ascent rates, based on the Alarms you have set up.

| **1. Descent Rate** | **2. Descent Rate Alarm** | **3. Ascent Rate** | **4. Ascent Rate Alarm** |

CNS/N2 Loading

Your KAON offers visual indicators of Central Nervous System (CNS) oxygen loading and Nitrogen (N2) loading on the right and left sides of the screen, respectively.

Gas

Your current gas is shown on the bottom left of the screen

Gas/PO2/CNS

The **gas** alarm will be displayed in the same place as your gas label, and it will blink. This is because you have exceeded the maximum PO2 of that gas.

The **PO2** alarm is triggered if the gas you are breathing has a higher PO2 than 1.4. This alarm threshold of 1.4 can only be changed if you enter Tec mode (not recommended unless you are properly trained). An example of the PO2 alarm would be if you are diving 40% nitrox, and you dive to 30m/100ft, your PO2 would be 1.6 (which is more than the threshold of 1.4) and the alarm would go off.

The **CNS** alarm will be displayed if you have exceeded your CNS limit. For more information on this alarm, please refer to the Oxygen loading section of the manual.

Temperature

The current temperature of the surrounding environment is displayed in the lower-left-hand corner, next to the battery indicator.

It is displayed either in Celsius or in Fahrenheit, depending on your Units setting (refer to the "Units" section of the manual for details). You will see a "C" or "F" letter next to the temperature value to let you know which units you have selected.

Keep in mind that the temperature sensor is inside the KAON unit, so it can take many minutes for it to adjust to a rapid external temperature change.

The KAON will function when its internal temperature is between - 0 to 40°C (32 to 104°F). If the KAON's internal temperature exceeds 40°C/104°F (in direct sunlight, for example) the OLED display could show some visual disturbances. This is not a product failure – the display will return to normal when the unit is cooled down.

Battery Indicator

The battery status is represented graphically with a battery icon or with a battery voltage value.

- The battery icon is solid green when the battery voltage is:
  o more than 3.30V for disposable Lithium battery
  o more than 3.50V for rechargeable Lithium-Ion battery
- The battery icon is solid yellow when there is:
  o less than 3.30V for disposable Lithium battery
  o less than 3.50V for rechargeable Lithium-Ion battery
- The battery icon is solid red when there is:
  o less than 3.10V for disposable Lithium battery
  o less than 3.40V for rechargeable Lithium-Ion battery

> You must change your battery immediately when the indicator turns red. Lithium batteries sustain high power for a long time, but once the power drops, it does so very fast. A red battery indicator shows that the battery power will drop to insufficient power within a few minutes.

Learn more about your KAON's battery in the section "Important Information About KAON's Battery".

"Battery Savings" mode

In the event that your battery is very low during the dive, your KAON will go into "Battery Savings" mode. It is a mode that tries to preserve the battery as much as possible, so that the KAON keeps functioning as long as possible. This mode changes the following things:

- all the information on the display will turn green (the color that is most power-economical)
- the display brightness will be set to low

For more details, please refer to Battery Savings Mode: When Your Battery Voltage Drops Below A Critical Level

Exiting the water

Once you are shallower than 0.6 meters / 2 feet, your KAON will go back into surface mode and offer you access to surface menus.

However, for next few minutes, it will remain in post-dive mode. You can control length of this period, in menu setting Minimum Surface Interval. This means that if you resume your dive within that period, it will be counted as continuation of previous dive, instead of a new one. This also means, that all the numbers, such as maximum depth, average depth, dive time, etc. will not be reset.

After that, if you decide to dive again, it will be counted as a new dive.

Last dive information

When on the surface, and not in Sleep Mode, your KAON will display information about the last dive that you have done.

Surface – it is time elapsed since your last dive. If it is less than 24 hours, you will see the number of hours and minutes. If it is more than 24 hours, you will see number of days and hours. If it is more than 10 days ago, you will not see any surface interval.

Last depth – is the maximum depth of your last dive, with one decimal place. Depending on your unit settings, it will be either in meters, or in feet, and you will see "m" or "ft" printed after the number.

Last time – is the total time of the last dive, displayed according to your dive time settings – either as total number of minutes, or as hours:minutes.

Altitude Compensation/Surface Pressure Adjustments

The KAON does not have a water sensor that can sense whether it is in the water based on "wetness".

Instead, your KAON continuously tracks atmospheric pressure to determine the surface pressure at the start of your dive. When it senses a sudden change in ambient pressure, it understands that you have entered the water and that a dive is beginning.

Your KAON can generally distinguish between a sudden change in pressure caused by water entry, vs. other types of sudden changes in pressure, such as a plane taking off, or driving up a mountain.

This method of surface pressure detection has proven quite reliable, but it is always possible to trick your KAON, for example:

- if you place your KAON in shallow and very stable body of water (such as a bucket full of dive gear being rinsed), your KAON may assume that current surface pressure is more than it is in reality. If you go diving immediately after this, your depth reading may be distorted.
- if you increase ambient pressure very quickly after the KAON has adjusted for being at altitude (e.g. if you were to skydive with a KAON), it might go into a phantom dive, as it will assume that you have entered the water. In this highly unlikely case, the only solution is to reset your KAON by removing the battery (please refer to the Changing The KAON's Battery section for details).
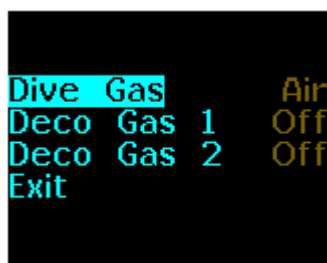
You can always check what KAON assumes as the current surface pressure by going to the "Status" screen (please refer to Status section for details).

DIVING WITH YOUR KAON IN TEC MODE
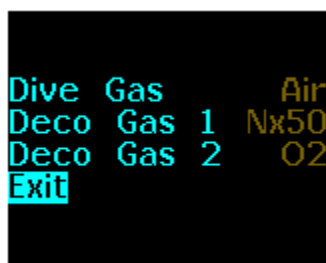
Overview

Your KAON has a wide set of features that can assist you with your dive planning and preparation. The most basic selection is the Mode you wish to use your unit in. The KAON offers Rec, Tec and Gauge modes. The default is Rec mode, which only allows you to dive with one gas (21-40% oxygen). Should you wish to get decompression information for dives with more than one gas, you should switch your computer to Tec mode. For details on making the switch, please see the Dive Planning > Mode section of the manual.

In Tec mode, the KAON functions as a three-gas computer. You can define one Dive Gas and two Deco Gases, each from 21-100% oxygen. The default mix is Air as a Dive Gas.

<table>
<tr><td>

```
Dive  Gas        Air
Deco  Gas  1     Off
Deco  Gas  2     Off
Exit
```

</td><td>

```
Dive  Gas        Air
Deco  Gas  1    Nx50
Deco  Gas  2      O2
Exit
```

</td></tr>
<tr><td align="center">**Default Dive Gas is Air**</td><td align="center">**Air as Dive Gas**
50% and 100% O2 as Deco Gases</td></tr>
</table>

In this mode the KAON assumes you are planning to incur some decompression obligation and gives you control over a number of extra settings, such as your level of Conservatism, your Dive PO2 and Deco PO2 levels, and the depth of your Last Deco Stop (please see the relevant sections of the Dive Setup menu for mode information). You also have extended dive planning options which allow you to plan and view predicted deco stops (Runtime).

During your dive, the KAON will begin by displaying your No Decompression Limit (NDL). If you complete your dive within the NDL time, the KAON will tell you to complete a safety stop for 3 minutes at 5m/15ft. During these 3 minutes, if you drop below 6.5m/21ft, the safety stop counter will turn off and reset. It will begin again once you return to the safety stop depth of 5m/ 15ft.

Should you continue diving beyond your NDL time – **and you should only do this if you have knowledge of decompression diving and sufficient gas to complete the dive safely** - the KAON will start calculating your decompression obligation and indicate the depth and duration of any decompression stops you need to complete to exit the water safely. The unit calculates your NDL or your decompression plan using Bühlmann ZH-L16C[1], with one of three possible levels of Conservatism, based on common Bühlmann Gradient Factors.

WARNING:
ALWAYS dive based on sufficient gas remaining, NOT No Decompression Limit time remaining

Your KAON only provides decompression information
i.e. the amount of time you can dive with no decompression (your No Decompression Limit, NDL)
or, if you exceed your NDL, the KAON will tell you your decompression plan

Your KAON does NOT provide information on "air-time remaining"
It is not connected to your tank in any way and does not provide any information about air-time
remaining. You must use your submersible pressure gauge (SPG) to monitor the gas level remaining in
your tank, and you should always ensure you have sufficient gas to complete your dive safely.

You should ALWAYS begin your ascent so you have sufficient gas to complete your dive
This may occur BEFORE your No Decompression Limit runs out.
Please dive based on sufficient gas remaining, NOT no decompression limit time remaining.

WARNING
NEVER undergo a decompression dive without proper training

NEVER EXCEED the KAON's No Decompression Limit unless you have training in decompression
diving.

WARNING
ALWAYS have a backup source of decompression information
Do not rely on the KAON as your as a definite or single source of decompression information.

Both the KAON Dive Planning and In-Water Decompression Calculations likely still have bugs. We
have looked for them and tried to eliminate them, but they can still appear during use. Bugs can cause
the unit to provide inaccurate or incomplete information, or cause the unit to reset or turn off and stop
providing any information at all.

You should always check for software updates
(http://liquivision.com/downloads/KaonSoftwareHistory.php)
and install all applicable updates, every time you prepare to use the KAON.

You must have a plan to handle a KAON dive computer failure during your dive. Do not risk your life
on only one source of information.

Setting Up a Dive In Tec Mode

Once you have Unlocked your KAON, and set up the required Time/Date and Battery information, setting up your first dive in Tec mode is very simple. All you need to do is:

1. Set up Metric/Imperial Units. Go to the "Preferences > Units" menu item and make your selection.

2. Set the KAON up in Tec mode. Go to the "Dive Planning > Mode" menu item and select "Tec".

3. Set up your desired level of Conservatism.
When you switch from Rec mode to Tec mode for the first time, you will be prompted to enter your desired level of conservatism with this "Warning" screenshot. Tap Left to exit this screen.

You can edit your conservatism by going to "Dive Planning > Dive Setup > Conservatism" menu item. The default setting is "2". You can select from the following:

Level "0" - standard Bühlmann ZH-L16C with no added conservatism (Gradient Factors 100/100)
Level "1" - Bühlmann ZH-L16C with some added conservatism (Gradient Factors 30/85)
Level "2" - Bühlmann ZH-L16C with more added conservatism (Gradient Factors 30/75)

4. Set up your PO2 Dive and PO2 Deco values. In the same Dive Setup menu, you will have the option to set up the maximum allowable partial pressure of oxygen in the gas you are breathing, for both your Dive Gas and your Deco Gas. "Dive Planning > Dive Setup > PO2 Dive / PO2 Deco". The default for your Dive Gas is 1.4, and the default for your Deco Gases is 1.6.

5. Set up the depth of your last decompression stop. If you do not incur any decompression, you will automatically be prompted to complete a Safety Stop for 3 minutes at 5m/15ft and you cannot change this depth. However, if you do enter into decompression, you can control the depth of your last decompression stop – for example, if there are big waves, you may like to have your deco stop well beneath them. The default setting is 3m/10ft and increases in increments of 3m/10ft.

6. Set up your dive gas. The default is "Air". You can change it to any nitrox mix from Air (21%) to 100% oxygen by following the instructions in the "Dive Planning > Gases" section of this manual.

7. Set up your deco gases, if any. The default is "Off". You can set Deco Gas 1 and Deco Gas 2 to any nitrox mix from Air (21%) to 100% oxygen by following the instructions in the in the "Dive Planning > Gases" section of this manual.

8. Review your dive plan. In Tec mode, you have two options to prepare for your dive:
        - Compute NDL
        - Runtime
Entering the "Dive Planning > Compute NDL" menu item will create a chart with the amount of time you can spend at a given depth without incurring any decompression. For example, if you select "Air" as your dive gas, your NDL at 15 m (about 50 ft) will be 57 minutes. This can help you plan the amount of gas you take on your dive.

Entering the "Dive Planning > Runtime" menu item allows you to set up a dive plan. For example, you can say that you are planning to dive to 30m/100ft for 20 minutes, and the computer will tell you the total duration of your dive, including any deco stops, based on the gases and level of conservatism you have set up.

9. *Set up your Alarms* by accessing "Dive Planning > Alarms". The default settings are:
- Alarms "On"
- Depth: 30 metres (100 feet)
- Time: 60 minutes
- Ascent Rate: 10 metres per minute (30 feet per minute)
- Descent Rate: 30 metres per minute (90 feet per minute)

10. *Run a Dive Simulation*. This feature, found in "Dive Planning > Simulation" allows you to create a dive simulation for a desired depth and time, at up to 4x normal speed. This lets you:
- Double-check all your dive settings (e.g. to catch that you have a depth alarm set to 30 m / 100 ft while you plan to dive to 40 m / 130 ft).
- Pre-view the dive screen Layout, and familiarize yourself with the location of key pieces of information.
- Practice accessing the Underwater Menus, and familiarize yourself with the options available to you there.

11. *Exit all menus, then select "Shut Off – you are now ready to dive!* At the bottom of each menu screen there is the option to "Exit". Keep selecting this until you reach the main menu, then select "Shut Off" at the very top of the main menu. Your unit will go blank. You are now ready to dive!

Settings That Will Affect Your Dive
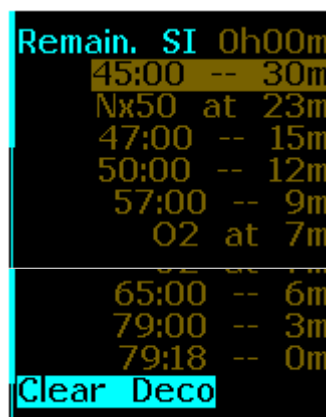
Gas Settings

You should only set up the gases you plan to carry on a given dive, as your KAON will assume you have these gases available to calculate your decompression. For example, if you use the "Runtime" feature to plan a dive to 30m (about 100 ft) with 45 minutes of bottom time on Air with Deco Gases "Off", your KAON will recommend 140 minutes of deco, vs. if you plan a 30m dive with 45 minutes of bottom time on Air, with Deco Gas 1 set to 50% nitrox and Deco Gas 2 set to 100% oxygen, your KAON will recommend 79 minutes of deco (this is assumes default conservatism and PO2 settings).

Dive on Air only   **Dive on Air**
                              Deco on 50% and 100%

Should you lose a gas during your dive, you should use the "LOST GAS" option to remove this gas from your gas list, so that your KAON recalculates your dive plan according to the gases you are actually carrying/breathing.

Switching Gases

Your KAON does not automatically switch gases underwater during your dive, however if it detects that there is a 'better' gas for you to breathe on the ascent, it will flash the gas icon in the lower left corner.

For example, if you are making the dive described in the previous section (diving "Air" to 30m/100ft, bottom time of 45 minutes, Deco Gas 1 = 50%, Deco Gas 2 = 100%), the "Runtime" surface dive planning feature of your KAON will suggest that you switch to 50% nitrox at 23m, and your KAON will flash the "Air" label in your dive screen at 23m/75ft, prompting you to switch.

On the other hand, let's say that you were to switch to 50% nitrox prematurely, just after you left the bottom at 28m/90ft. Then your Gas label on your dive screen would start flashing, alternating with the PO2 warning, to tell you that you are currently breathing a gas that is NOT considered breathable at that depth and that you ought to switch to a gas that is considered breathable.

Conservatism Settings

The conservatism setting of your KAON will affect the length of your No Decompression Limit (NDL) or, if you enter into decompression, the depth and duration of your decompression stops. The more conservative the setting, the shorter your NDL time and the more decompression time you will incur. In Tec mode, your KAON is designed to default to the most conservative setting (Level "2"), but you can adjust this to suit your needs. Here is an example of a dive planned using the "Runtime" feature, where the key parameters (Air, 30m/100ft, 20 minutes bottom time) are constant, but the level of conservatism has been changed:

Conservatism Level 2	Conservatism Level 1	Conservatism Level 0
(= GFs 30/75)	(= GFs 30/85)	(= GFs100/100)
Most Conservative		Least Conservative

You will see that the total dive time on Level 2 is 30 minutes, while the total dive time on Level 0 is 23 minutes. We recommend that you dive on the default Level 2 setting unless you are familiar with decompression theory in general, the specifics of the Bühlmann ZH-L16C model, including Gradient Factors. You can learn more about these topics by referring to the works listed in our Bibliography.

PO2 Settings

The Dive PO2 and Deco PO2 menu items allow you to set the maximum allowable partial pressure of oxygen for the gas you are breathing. The default (and maximum) value for your Dive PO2 is 1.40, while the default (and maximum) value for your Deco PO2 is 1.60. Should you exceed those values at any time during your dive, your Gas label in the dive screen will start flashing, and alternating with the PO2 alarm.
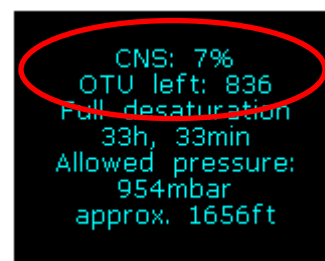
Safety Stop/Deco Stops

If you begin your final ascent within the No Decompression Limit time, you will be asked to complete a safety stop for 3 minutes at 5m / 15ft. If, at any time during these 3 minutes, you drop below 6.5m / 21ft, the safety stop counter will turn off and reset. It will begin again once you return to the safety stop depth of 5m / 15ft. The safety stop is optional. If you skip the safety stop, you will not be penalized.

If you exceed the NDL, then your KAON will automatically start computing your decompression plan and will suggest decompression stops accordingly. It will NOT suggest a mandatory safety stop in this scenario, as the safety requirements should be fulfilled by following the decompression stops.

Oxygen Loading

During the dive, your KAON calculates your CNS (Central Nervous System) and OTU (Oxygen Toxicity Unit) loading. Your current CNS/OTU levels are easy to access through the Your Saturation menu item and the screen looks like this.

For a full explanation of CNS/OUT values, please refer to your nitrox training manual.

Entering the water

Turning Your KAON On

We recommend that you turn your KAON on yourself before you enter the water to check the remaining battery power and to make sure that all is functioning properly. You can turn it on by tapping the unit in the Down direction 3/5 times.

Otherwise, it will turn on automatically few seconds after you take it deeper than 1.6 meters / 5.25 feet.

Beginning Your Dive

When you start to descend and go below 1.6 meters / 5.25 feet, your KAON will turn into dive mode.

Dive Display

There are two underwater display layouts – Standard and Graphical. Both look the same while diving within the No Decompression Limit, but they look different if you enter into decompression.

You can edit the colors of all the items on your screen, although you should be careful to consider how the changes you make will impact battery consumption. Refer to the Colors menu item for more information on setting colors, and to the Important Information on KAON's Battery for impact of color on power consumption.
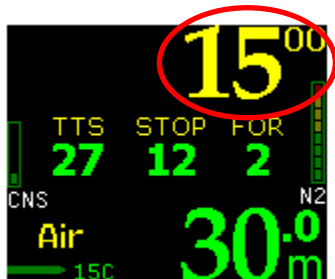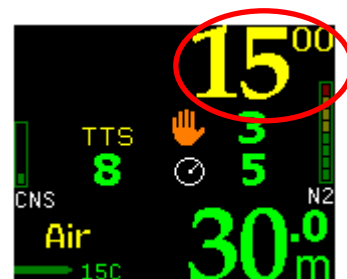
Dive Time

The large yellow number in the upper-right-hand corner of your display (here, circled in red) is the Dive Time. Dive time is measured in seconds, starting from the moment your KAON reaches 1.6 meters / 5.25 feet. It will stop once you surface, and it will reset once you have been on the surface for more than the Minimum Surface Interval.

| **Diving within NDL Limit** | **STANDARD – in DECO** | **GRAPHIC – in DECO** |

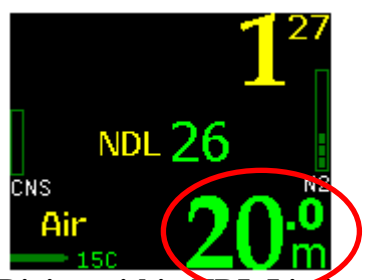The minutes of your dive can be displayed as follows (refer to the "Show Hours" section for details):
- minutes:seconds, e.g. 135:00
- hours:minutes:seconds, e.g. 2:15:00

The seconds of your dive can be displayed as follows (refer to the "Analog Clock" section for details):
- as a number, e.g. 135:00
- a graphical indication of the seconds elapsed: a bar display filling up to a full minute

Depth

The green number in the lower-right-hand corner of the display (here, circled in red) is your Current Depth. If you chose metric units, you will see the depth in meters, with one decimal place in smaller font. If you chose imperial units, you will see the depth in feet, with no decimal places. Please refer to the "Units" section of the manual for details on choosing units.

| **Diving within NDL Limit** | **STANDARD – in DECO** | **GRAPHIC – in DECO** |

Decompression Information Zone

The horizontal section in the middle of the screen is reserved for your No Decompression Limit or decompression information. Each number in this section has either a name or a graphical indicator. Here is a list of available data:

Diving within NDL Limit

STANDARD: Deco Plan Showing STOP/FOR

GRAPHIC: Deco Plan Showing STOP/FOR

STANDARD: At Stop Showing STOP

STANDARD: At Stop Showing STOP

- NDL – No Decompression Limit is the maximum time you can stay at your current depth before you will incur a decompression obligation. It is displayed in minutes, and rounded down to the nearest minute. You should NEVER exceed this time, unless you have specific training in decompression diving.
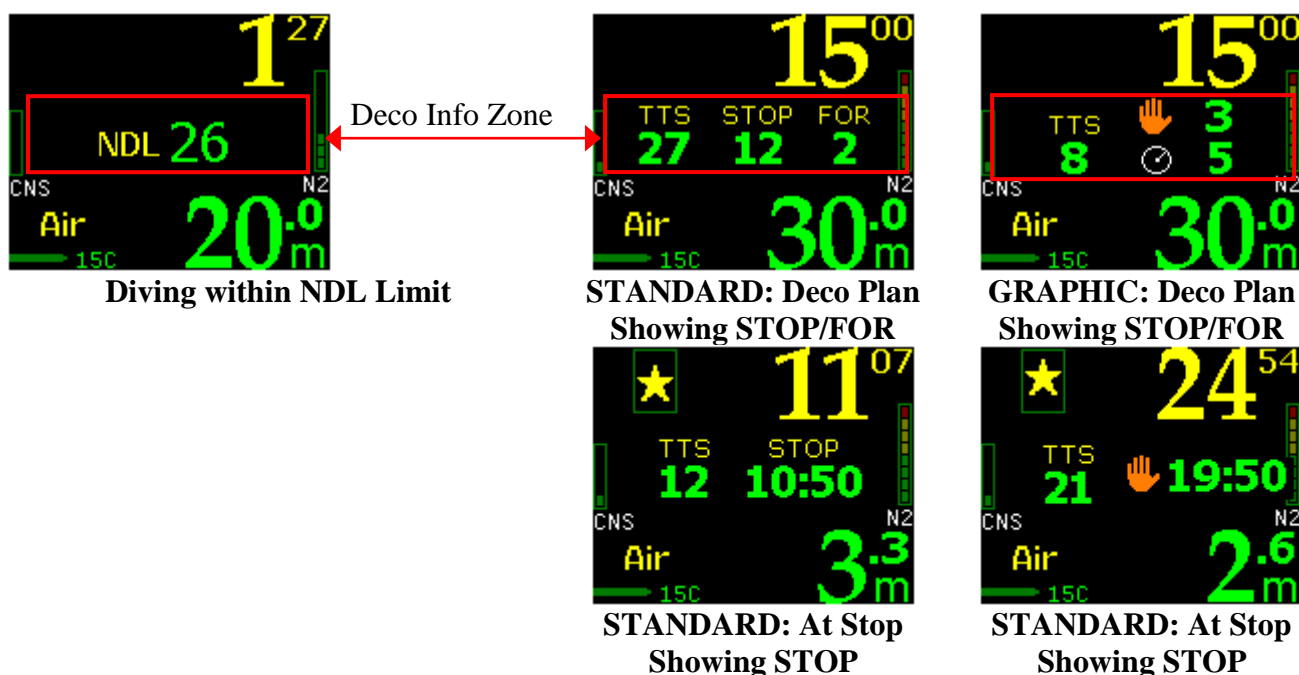
- TTS – Time To Surface is total time it should take you to get to the surface, if you were to precisely follow your KAON's ascent schedule, including all the stops and recommended gas switches. It is printed in minutes, and rounded up to the nearest minute.

- STOP/FOR (Standard display) – Shown together, this pair describes the deepest decompression stop on your KAON's ascent schedule. Below "STOP" there is depth of this stop (in meters or feet, depending on your Units settings). Below "FOR" there is the stop's duration, in minutes, rounded up to the nearest minute. If you are shallower than this stop, the depth below "STOP", will blink to remind you to go deeper.

  In Graphical Display mode, STOP/FOR is shown like this: . The hand means "Stop" and the stop depth is shown beside it. The clock means "For" and the stop duration is shown beside it.

- STOP (Standard display) – Shown as a stand alone value, "STOP" shows the length of the current decompression stop on your KAON's ascent schedule when you are currently at this stop (that is, within 0.5m / 1.6ft from it). It is displayed in minutes and seconds, rounded up to 10 seconds.

  In Graphical Display mode, STOP is shown like this: . The hand means "Stop" and the stop depth is shown beside it.

Graphical Decompression Stop Information

The KAON provides you with a number of graphical cues to help you execute your decompression plan correctly. The first one is a Large Arrow pointing up (picture 1), which tells you to ascend to your next deco stop. Once you get closer to your stop, you will see some Small Arrows pointing up, and the start of a Starfish (picture 2). The objective is to keep the Starfish centered in the green box – that

means you are correctly holding your deco stop (picture 3). If you overshoot your deco stop, you will see Small Arrows pointing down and your STOP alarm will start flashing (picture 4).

| 1. Large Up Arrow | 2. Small Up Arrows & start of Starfish | 3. Hold Starfish in box! | 4. Small Down Arrows & Stop Alarm |

Graphical Ascent/Descent Indicators & Alarms

The KAON provides you with a number of graphical cues to help you manage your descent and ascent rates, based on the Alarms you have set up.

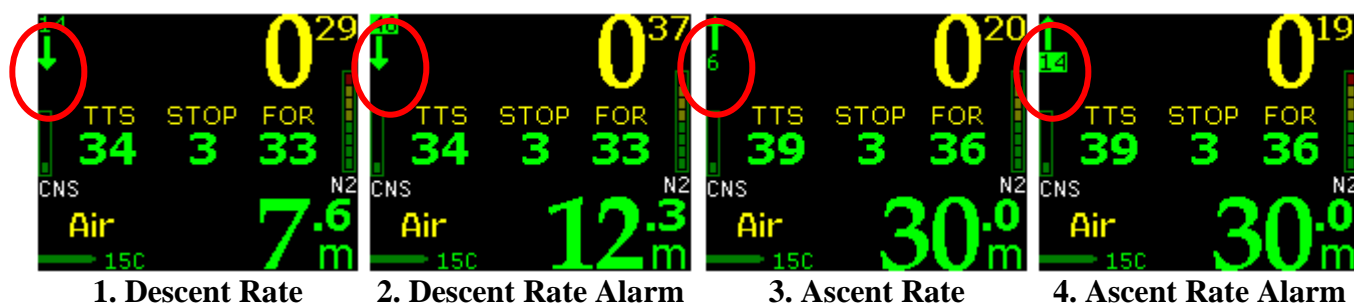| 1. Descent Rate | 2. Descent Rate Alarm | 3. Ascent Rate | 4. Ascent Rate Alarm |

CNS/N2 Loading

Your KAON offers visual indicators of Central Nervous System (CNS) oxygen loading and Nitrogen (N2) loading on the right and left sides of the screen, respectively.

Gas

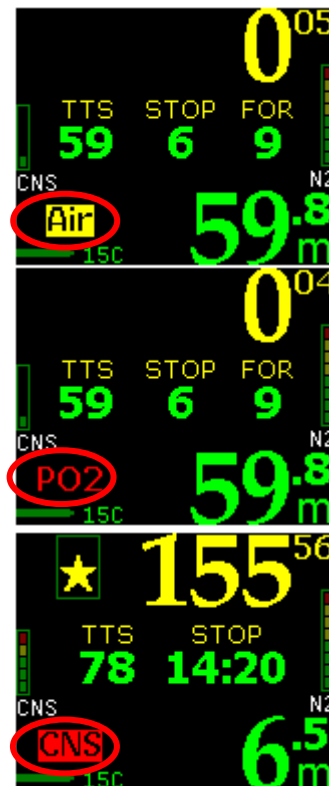Your current gas is shown on the bottom left of the screen

Gas/PO2/CNS Alarms

The **gas** alarm will be displayed in the same place as your gas label, and it will blink. This is because either
1. You have exceeded the maximum PO2 of that gas.
Or
2. There is a better gas to breathe on the ascent with a higher O2 content.

The **PO2** alarm is triggered if the gas you are breathing, at your current pressure, has either:
- a lower PO2 than the preset Minimum PO2 of 0.18
- a higher PO2 than 1.4 if you gas is configured as a Dive Gas
- a higher PO2 than 1.6 if your gas is configured as a Deco Gas.

The **CNS** alarm will be displayed if you have exceeded your CNS limit. For more information on this alarm, please refer to the Oxygen loading section of the manual.

Temperature

The current temperature of the surrounding environment is displayed in the lower-left-hand corner, next to the battery indicator.

It is displayed either in Celsius or in Fahrenheit, depending on your Units setting (refer to the "Units" section of the manual for details). You will see a "C" or "F" letter next to the temperature value to let you know which units you have selected.

Keep in mind that the temperature sensor is inside the KAON unit, so it may take a moment for it to adjust to a rapid external temperature change.

The KAON will function when its internal temperature is between - 0 to 40°C (32 to 104°F). If the KAON's internal temperature exceeds 40°C/104°F (in direct sunlight, for example) the OLED display could show some visual disturbances. This is not a product failure – the display will return to normal when the unit is cooled down.

Battery Indicator

The battery status is represented graphically with a battery icon or with a battery voltage value.

- The battery icon is solid green when the battery voltage is:
  - more than 3.30V for disposable Lithium battery
  - more than 3.50V for rechargeable Lithium-Ion battery
- The battery icon is solid yellow when there is:
  - less than 3.30V for disposable Lithium battery
  - less than 3.50V for rechargeable Lithium-Ion battery
- The battery icon is solid red when there is:
  - less than 3.10V for disposable Lithium battery
  - less than 3.40V for rechargeable Lithium-Ion battery

<div style="background-color: yellow;">
You must change your battery immediately when the indicator turns red. Lithium batteries sustain high power for a long time, but once the power drops, it does so very fast. A red battery indicator shows that the battery power will drop to insufficient power within a few minutes.
</div>

Learn more about your KAON's battery in the section "Important Information About KAON's Battery".

"Battery Savings" mode

In the event that your battery is very low during the dive, your KAON will go into "Battery Savings" mode. It is a mode that tries to preserve the battery as much as possible, so that the KAON keeps functioning as long as possible. This mode changes the following things:

- all the information on the display will turn green (the color that is most power-economical)
- the display brightness will be set to low

For more details, please refer to Battery Savings Mode: When Your Battery Voltage Drops Below A Critical Level

Exiting the water

Once you are shallower than 0.6 meters / 2 feet, your KAON will go back into surface mode and offer you access to surface menus.

However, for next few minutes, it will remain in post-dive mode. You can control length of this period, in menu setting Minimum Surface Interval. This means that if you resume your dive within that period, it will be counted as continuation of previous dive, instead of a new one. This also means, that all the numbers, such as maximum depth, average depth, dive time, etc. will not be reset.

After that, if you decide to dive again, it will be counted as a new dive.

Last dive information

When on the surface, and not in Sleep Mode, your KAON will display information about the last dive that you have done.

Surface – it is time elapsed since your last dive. If it is less than 24 hours, you will see the number of hours and minutes. If it is more than 24 hours, you will see number of days and hours. If it is more than 10 days ago, you will not see any surface interval.

Last depth – is the maximum depth of your last dive, with one decimal place. Depending on your unit settings, it will be either in meters, or in feet, and you will see "m" or "ft" printed after the number.

Last time – is the total time of the last dive, displayed according to your dive time settings – either as total number of minutes, or as hours:minutes.

Altitude Compensation/Surface Pressure Adjustments

The KAON does not have a water sensor that can sense whether it is in the water based on "wetness".

Instead, your KAON continuously tracks atmospheric pressure to determine the surface pressure at the start of your dive. When it senses a sudden change in ambient pressure, it understands that you have entered the water and that a dive is beginning.

Your KAON can generally distinguish between a sudden change in pressure caused by water entry, vs. other types of sudden changes in pressure, such as a plane taking off, or driving up a mountain.

This method of surface pressure detection has proven quite reliable, but it is always possible to trick your KAON, for example:

- if you place your KAON in shallow and very stable body of water (such as a bucket full of dive gear being rinsed), your KAON may assume that current surface pressure is more than it is in reality. If you go diving immediately after this, your depth reading may be distorted.
- if you increase ambient pressure very quickly after the KAON has adjusted for being at altitude (e.g. if you were to skydive with a KAON), it might go into a phantom dive, as it will assume that you have entered the water. In this highly unlikely case, the only solution is to reset your KAON by removing the battery (please refer to the Changing The KAON's Battery section for details).

You can always check what KAON assumes as the current surface pressure by going to the "Status" screen (please refer to Status section for details).

DIVING WITH YOUR KAON IN GAUGE MODE

Entering the water

Dive Planning

<div style="background-color: yellow;">
Your KAON in Gauge Mode acts as a bottom timer – it calculates the duration of your dive, its depth, and other simple parameters. It does not make any decompression calculations, nor does it provide any decompression information. You will need to use other means (tables, desktop decompression planners, dive computers, etc.) to plan your dive.

Never attempt to plan a decompression dive without a proper training.
</div>

Although your KAON in Gauge Mode does not provide any decompression information, it will be a great tool in assisting you to execute a pre-planned dive.

<div style="background-color: yellow;">
IMPORTANT NOTE ON SWITCHING TO/FROM GAUGE MODE
In Gauge Mode, surface off-gassing continues when the device is above water. Once the device is underwater, all deco calculations are suspended. When switching from Gauge Mode to Rec/Tec Mode, the deco information will no longer be accurate, since previous tissue values are used. When you switch out of Gauge Mode, you will see this warning:
Tap Left to continue.
</div>
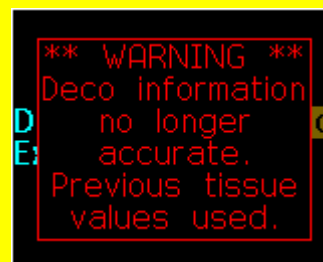
Turning Your KAON On

We recommend that you switch your KAON on yourself before you enter the water to check the remaining battery power and to make sure that all is functioning properly. You can turn it on by tapping the unit in the "Down" direction three/five times.

Otherwise, it will turn on automatically few seconds after you take it deeper than 1.6 meters / 5.25 feet.

Beginning Your Dive

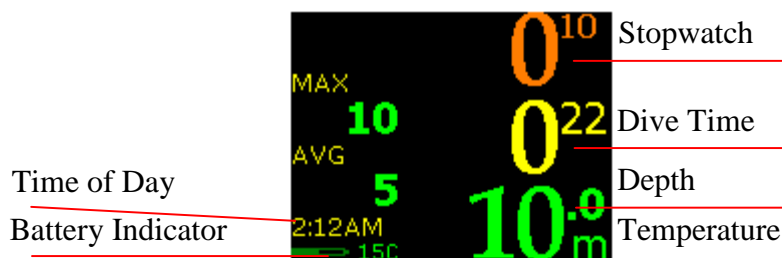When you start to descend and go below 1.6 meters / 5.25 feet, your KAON will turn into dive mode.

Diving

Dive Display

You have three different underwater display layouts to choose from: Standard, Simple and Alternate. The display layouts menu can be accessed both in surface mode and in dive mode.
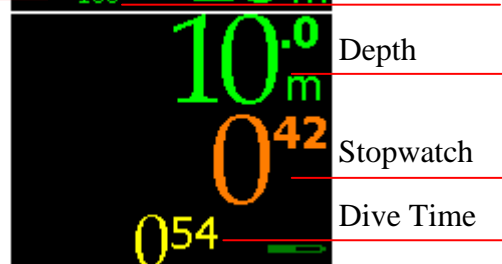
For more information, please refer to the Surface Menus "Display Settings - Layout" and Underwater Menus "Display - Layout" sections of the manual.

In addition, you can customize the color of each piece of information on your display. This can only be done on the surface. Please refer to the "Display Settings - Colors" section of the manual.
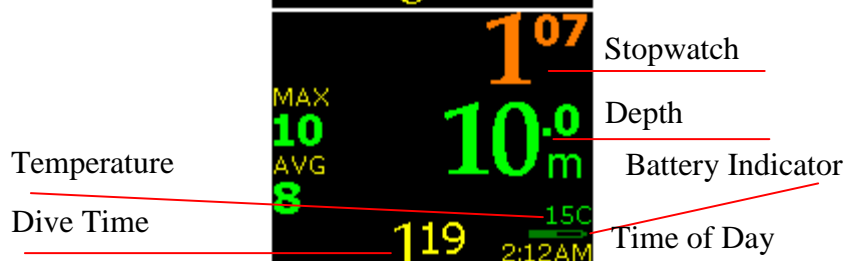
Display Layout: STANDARD

Stopwatch

MAX
10
AVG
5

Time of Day
Battery Indicator

2:12AM
15C

Dive Time
Depth
Temperature

Display Layout: SIMPLE

Depth

Stopwatch

Dive Time

Display Layout: ALTERNATE

Stopwatch

MAX
10
AVG
8

Temperature

Dive Time

Depth

Battery Indicator

Time of Day

Dive Time

One of large numbers on your display is the dive time – its location depends on the display setting you have chosen. Please refer to the screenshots above to locate the time value for each display setting.

Dive time is measured in seconds, starting from the moment your KAON reaches 1.6 meters / 5.25 feet. It will stop once you surface, and it will reset once you have been on the surface for more than 5 minutes. Dive time can be displayed in several ways:

The minutes of your dive can be displayed as follows (refer to the "Show Hours" section for details):
- minutes:seconds, e.g. 135:00
- hours:minutes:seconds, e.g. 2:15:00

The seconds of your dive can be displayed as follows (refer to the Analog Clock" section for details):
- as a number, e.g. 135:00
- a graphical indication of the seconds elapsed: a bar display filling up to a full minute

Depth

Another one of the large number on the display is your current depth – its location depends on the display setting you have chosen. Please refer to the screenshots above to locate the depth value for each display setting.

If you chose metric units, you will see depth in meters, and one decimal place in smaller font.
If you chose imperial units, you will see depth in feet, and no decimal places.

Please refer to the "Units" section of the manual for details.

Stopwatch

As you begin your dive and your KAON goes into dive mode, the stopwatch will be off. You can activate the stopwatch during your dive by tapping into menu mode and selecting "Stopwatch On". Turning the stopwatch on will cause the time display to shrink and move, and the stopwatch will take its place.

Screen Layout: STANDARD
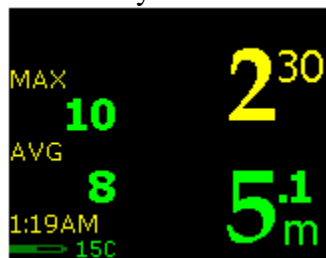
Stopwatch: OFF   Stopwatch: ON

During your dive, you can:
- Turn the stopwatch on and off (that is, display it on your screen, or remove it)
- Start and pause the stopwatch
- Reset the stopwatch

Please refer to the "Stopwatch" section of the manual for details.

The stopwatch format will match the dive time format you have previously selected, either: total minutes or hours:minutes elapsed. Please refer to the "Show Hours" section of the manual for details.

However, the seconds value in the stopwatch is always displayed as a number, in a smaller font. It is never displayed graphically, regardless of the setting you have selected for dive time seconds display.

Maximum Depth

The label "MAX" refers to the maximum depth you have reached over your entire dive. It is displayed as a single number, without decimal places. It is displayed either in meters or in feet, depending on your Units setting (refer to the "Units" section of the manual for details).

Your maximum depth will reset if you surface for more than 5 minutes.

Average Depth

The label "AVG" refers to the average depth you have reached over your entire dive. The average depth count starts at the beginning of the dive.

You can reset your average depth once you reach the bottom by tapping into the underwater menus and selecting "Reset AVG" (refer to the "Reset AVG" section of the manual for details). In that case, average depth displayed here will be average depth since the last reset. It is displayed as a single number, without decimal places.

It is displayed either in meters or in feet, depending on your Units setting (refer to the "Units" section of the manual for details).

Your Average Depth will reset if you surface for more than 5 minutes.

Please note that the Average Depth that is saved in the Dive Log is not affected by the reset option – it is average depth over the whole dive.

Time of day

The time of day is displayed in hours and minutes. You can choose whether you want to have it displayed as a 12-hours (AM/PM) format, or 24-hours (refer to the "Time/Date" section of the manual for details).

Temperature

This is current temperature of surrounding environment.

It is displayed either in Celsius or in Fahrenheit, depending on your Units setting (refer to the "Units" section of the manual for details). You will see a "C" or "F" letter next to the temperature value to let you know which units you have selected.

Keep in mind that the temperature sensor is inside the KAON unit, so it may take a moment for it to adjust to a rapid external temperature change.

Battery Indicator

The battery status is represented graphically with a battery icon or with a battery voltage value.

- The battery icon is solid green when the battery voltage is:
    - more than 3.30V for disposable Lithium battery
    - more than 3.50V for rechargeable Lithium-Ion battery
- The battery icon is solid yellow when there is:
    - less than 3.30V for disposable Lithium battery
    - less than 3.50V for rechargeable Lithium-Ion battery
- The battery icon is solid red when there is:
    - less than 3.10V for disposable Lithium battery
    - less than 3.40V for rechargeable Lithium-Ion battery

You must change your battery immediately when the indicator turns red. Lithium batteries sustain high power for a long time, but once the power drops, it does so very fast. A red battery indicator shows that the battery power will drop to insufficient power within a few minutes.

Learn more about your KAON's battery here: "Important Information About KAON's Battery".

"Battery Savings" Mode

In the event that your battery is very low during the dive, your KAON will go into "Battery Savings" mode. It is a mode that tries to preserve the battery as much as possible, so that the KAON keeps functioning as long as possible. This mode changes the following things:

- all the information on the display will turn green (the color that is most power-economical)
- the display brightness will be set to low

For more details, please refer to Battery Savings Mode: When Your Battery Voltage Drops Below A Critical Level.

Exiting the water

Once you are shallower than 0.6 meters / 2 feet, your KAON will go back into surface mode and offer you access to surface menus.

However, for next few minutes, it will remain in post-dive mode. You can control length of this period, in menu setting Minimum Dive. This means that if you resume your dive within that period, it will be counted as continuation of previous dive, instead of a new one. This also means, that all the numbers, such as maximum depth, average depth, dive time, etc. will not be reset.

After that, if you decide to dive again, it will be counted as a new dive.

Last dive information

When on the surface, and not in Sleep Mode, your KAON will display information about the last dive that you have done.

Surface interval – it is time elapsed since your last dive. If it is less than 24 hours, you will see the number of hours and minutes. If it is more than 24 hours, you will see number of days and hours. If it is more than 10 days ago, you will not see any surface interval.

Last depth – is the maximum depth of your last dive, with one decimal place. Depending on your unit settings, it will be either in meters, or in feet, and you will see "m" or "ft" printed after the number.

Last time – is the total time of the last dive, displayed according to your dive time settings – either as total number of minutes, or as hours:minutes.

Altitude Compensation/Surface Pressure Adjustments

The KAON does not have a water sensor that can sense whether it is in the water based on "wetness".

Instead, your KAON continuously tracks atmospheric pressure to determine the surface pressure at the start of your dive. When it senses a sudden change in ambient pressure, it understands that you have entered the water and that a dive is beginning.

Your KAON can generally distinguish between a sudden change in pressure caused by water entry, vs. other types of sudden changes in pressure, such as a plane taking off, or driving up a mountain.

This method of surface pressure detection has proven quite reliable, but it is always possible to trick your KAON, for example:

- if you place your KAON in shallow and very stable body of water (such as a bucket full of dive gear being rinsed), your KAON may assume that current surface pressure is more than it is in reality. If you go diving immediately after this, your depth reading may be distorted.
- if you increase ambient pressure very quickly after the KAON has adjusted for being at altitude (e.g. if you were to skydive with a KAON), it might go into a phantom dive, as it will assume that you have entered the water. In this highly unlikely case, the only solution is to reset your KAON by removing the battery (please refer to the Changing The KAON's Battery section for details).

You can always check what KAON assumes as the current surface pressure by going to the "Status" screen (please refer to Status section for details).

CARING FOR YOUR KAON

The KAON is designed to be a robust device. However, it is still possible to damage it, or to shorten its life by improper use. Please follow these steps to care properly for your unit.

Protecting your KAON casing and screen from scratches

The KAON casing is made from a robust plastic, designed to protect the internal electronics. This plastic is not fully scratch resistant. We strongly recommend the adhesive ZAGG Shield (http://liquivision.com/extras_enlightened_protector.php), which is designed to cover the entire casing of the KAON as well as the screen, to protect them from scratches.

Post-Dive Care and Storage

You should turn off your KAON once you have completed your dive. It will eventually turn off on its own, but you will conserve battery power by turning it off once you are done using it.

You should rise your KAON in clear (non-salty) water after use, to prevent the accumulation of dried salt in the infrared apertures that communicate with the PC Interface and in the pressure sensor aperture.

You should then wipe your KAON dry and store it in a dry place.

Long-Term KAON Storage

If you are planning to store your unit for more than 1 month, you should remove the battery. This will only cause you to lose time of day and date information. All other settings and dive logs will remain.

We do not recommend removing your battery for shorter storage periods. Every time you open and close the battery compartment, there is a small risk of doing so improperly, opening the possibility of flooding the battery compartment.

Replacement Battery Storage

You should generally have at least one spare battery on hand, to make sure you have the possibility of changing your battery should the situation require you to do so.

Spare batteries should be stored in a cool, dry place, away from direct sunlight.

Service information

While we feel confident of the ongoing accuracy, European (CE) regulations require the unit to be periodically checked for the accuracy of its depth and time readings.

You may contact your dealer regarding testing every 5 years.

IMPORTANT INFORMATION ABOUT KAON's BATTERY

KAON Battery Type

There are several battery options available for your KAON

Disposable Batteries:
- White-wrapper ER14335M (compatible with BLACK battery holders ONLY, units #0-1250)

- Blue-wrapper ER17335M (compatible with WHITE battery holders ONLY, units #1250 and up, and with units that have their battery holders upgraded from BLACK to WHITE)
  NOTE: ER17335M offers about DOUBLE the battery life vs. the ER14335M

Rechargeable Battery:
- Green-wrapper ICR16340 without protection PCB (compatible with WHITE battery holders ONLY, units #1250 and up, and with units that have their battery holders upgraded from BLACK to WHITE).

THESE BATTERIES ARE THE **ONLY** AUTHORIZED BATTERIES

Please note that only ER14335M, ER17335M and ICR16340 without protection PCB batteries are authorized for use with your KAON. **ER14335 or ER17335 batteries (no M) and ICR16340 with a protection PCB are NOT compatible.** Only the batteries contained in Liquivision battery packs can be guaranteed to perform to Liquivision standards.

We strongly recommend always having a spare battery on hand, since spare batteries have a long shelf life and do not require any special storage environment (just dry and away from direct sunlight or heat).

Spare batteries are sold as follows:

- **Disposable Battery 1-Pack**
  - 1 disposable battery (ER14335M or ER17335M)
  - 1 spare O-ring

- **Disposable Battery 3-Pack**
  - 3 disposable batteries (ER14335M or ER17335M)
  - 3 spare O-rings
  - 1 resalable tube of O-ring lubricant

- **Charger Kit**
  - Charger
  - AC Adapter with international plug adapters
  - 2 rechargeable batteries (ICR16340)
  - 5 spare O-rings
  - 1 resealable tube of O-ring lubricant

- **Rechargeable Battery 2-Pack**
  - 2 rechargeable batteries (ICR16340)
  - 5 spare O-rings
  - 1 resealable tube of O-ring lubricant

KAON O-rings

You should inspect your battery cap O-ring with every battery change. Check for cracking, damage or dirt. If you choose to replace your O-ring, always make sure to clean the battery cap properly to remove any residue that may prevent a good seal and to lubricate the new O-ring with silicone O-ring lubricant. Only O-rings contained in Liquivision battery packs can be guaranteed to perform to Liquivision standards.

To order spare batteries and O-rings for your KAON, please contact your local Liquivision dealer.

How To Determine KAON Battery Life Remaining

The ER14335M KAON batteries can provide up to 46 hours of dive time with your unit while ER17335M batteries can provide up to 90 hours of dive time with your unit (low brightness, green font, battery used within a month of initial use), although 20-30 hours for the ER14335M batteries and 40-60 hours with the ER17335M batteries is more typical if you use the standard Liquivision color scheme on medium brightness and all the dives are done within a month of first using the battery.
The rechargeable ICR16340 batteries usually provide 15-20 hours of dive time and can be recharged up to 1,000 times.

Battery life is shown by the battery indicator on your KAON.
- A **Green** indicator means that you have enough battery power to complete a normal 2 hour dive. The safest way to perform a long dive (5+ hours) is to insert a fresh battery prior to the start of your dive.
- A **Yellow** indicator means a battery change is strongly recommended.
- A **Red** indicator means that you must immediately change your battery.

You should always check the battery life remaining on the surface, prior to beginning your dive, by briefly entering simulator mode with your unit. Your KAON uses more power in dive mode than in surface mode. It may show a green indicator in surface mode, but a yellow one in dive mode and you can check this by starting a dive simulation.

The discharge curve of lithium-thionyl-chloride batteries is very flat, with a very sudden drop-off, as shown in the graph below.
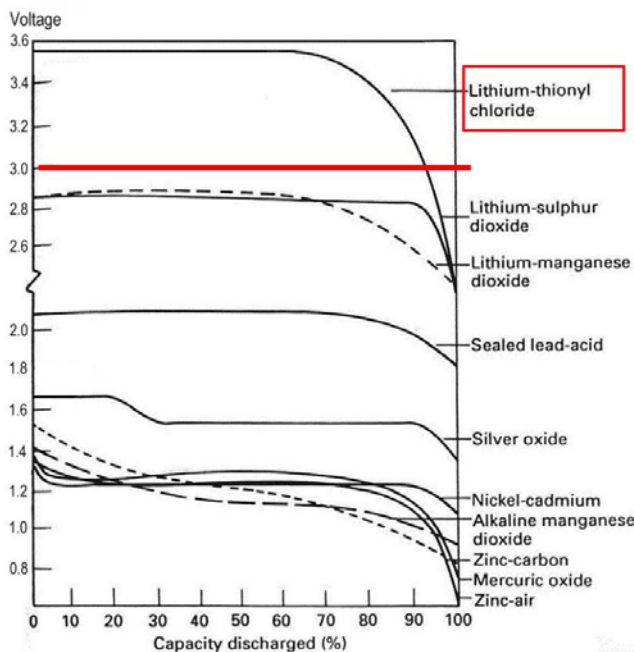
This means three things:

 - It is hard to estimate level of charge: The battery shows a steady 3.6V for most of its life - there is no slow battery voltage decrease that can inform your KAON about the amount of power that has been used and the amount of power left.

 - It is hard to estimate the amount of time left. Even if your KAON knew exactly how much battery power is left, it is still hard for your unit to judge how much dive time is left. Dive time will be greatly affected by user settings such as **screen brightness** and **colors**.

 - Once the battery voltage starts to drop, it drops fast. Your KAON will stop functionning entirely once the voltage drops below 2.90V. For this reason, it is important to pay attention to the **Yellow** battery indication - it means there is really very little time left.

Basic Rules For Optimizing Battery Life

You can extend/optimize your battery life in several ways:

- Always choose the lowest screen brightness setting you need for your dive. The KAON has an "Auto-Dim" feature, where the unit uses your chosen brightness setting on the surface, and slowly reduces brightness to Low as you descend to a selected depth.

 - Keep battery life in mind when setting screen colors. The OLED screen is an RGB screen, which means it has red, green and blue pixels. To display the color green, for example, it only needs to light up one pixel - the green one. To display any other colors, the screen must light up a combination of pixels. To display white, it must light up three pixels, full-force. Therefore, the most economical

display colors would be red, green and blue. The least economical display color is white. The standard Liquivision display color scheme is designed to balance readability with economical battery use.

Detailed Rules For Optimizing Battery Life

1. <u>Brightness</u>. Brightness has the biggest effect on battery life. As a general rule, HIGH brightness gives you HALF the battery life compared to MEDIUM brightness. Similarly, MEDIUM gives you HALF the battery life of LOW. This means that LOW brightness gives you FOUR TIMES more battery life than HIGH brightness. The best way to optimize battery life is the "Auto Dim" feature.

2. <u>Colors</u>. Colors have a dramatic impact as well. Primary colors (pure green, pure red, dark blue) consume the least battery power. Compound colors such as yellow, orange, and gray burn more battery power. Compound colors (those that require all three colors), such as light blue and light gray, burn the most battery power. You should use compound colors with caution.

3. <u>Refresh rate</u>. The refresh rate changes how fast information is updated on the screen. It has two settings, "Normal" and "Fast". If you can use Normal and you don't notice anything, that is the best choice. If you use Normal and you find that you can see the screen flickering when you move the unit, then select Fast. Also, if you plan on taking any pictures or video of the KAON, select Fast.
The Fast refresh rate burns about 20% more battery power than Normal. So battery life on "Fast" is reduced by about 20%.

4. <u>Display mode</u>. The display mode (standard, alternate, simple) has a small effect on battery life. Simple burns the least power. Alternate burns 10-15% more than simple. Standard burns 10% more than alternate.

5. <u>Water temperature</u>. Diving in cold water (water temperature below 12°C / 54°F) shortens the life of your battery. We strongly recommend using conservative colors and brightness settings when diving in cold water to maximize your battery life.

Battery Savings Mode: When Your Battery Voltage Drops Below A Critical Level

The KAON circuit requires a minimum voltage in order to measure the depth properly. In certain cases of aggressive brightness, aggressive colors, or extremely cold water, the voltage of the battery may drop below a critical voltage. Below that critical voltage, it is no longer possible to measure depth accurately. If that happens, the KAON will automatically switch into "Battery Savings Mode": all colors will be changed to green, and the brightness will be changed to low. The refresh rate will not be changed.

Battery Savings Mode is an emergency mode designed to raise the voltage of the battery to an acceptable level. The unit will remain with green colors and low brightness until the dive ends. When the next dive starts, your custom colors and brightness will be used. Again if the voltage drops below a critical level, Battery Savings Mode will be entered to raise the battery voltage.

If you find that your unit is repeatedly entering into Battery Savings Mode (all green text), then you are using too aggressive colors or brightness settings. Entry into Battery Savings Mode is more likely if the battery is nearing the end of its life, or if the water is very cold. However, entry into Battery Savings Mode does not necessarily mean the battery is nearing the end of its life. In some cases you could still have 10-20 more hours of dive time remaining, even if you notice a transition into Battery Savings Mode.

Tables Showing Estimated Battery Life Depending On User Settings

The following tables shows the approximate number of dive hours achieved with different settings, assuming the diving is done within one month of changing the battery, in warm water:

Table 1 (Default yellow/green colors, Standard Display Layout, diving over 1 month)
ER14335M Battery / ER17335M Battery

	High Brightness	**Medium Brightness**	**Low Brightness**
Slow refresh	11h / 23h	23h / 26h	38h / 76h
Fast refresh	10h / 20h	19h / 38h	31h / 63h

Table 2 (Custom Colors, Standard Display Layout, diving over 1 month)
ER14335M Battery / ER17335M Battery

	High Brightness	**Medium Brightness**	**Low Brightness**
All green, slow refresh	13h / 26h	23h / 47h	41h / 83h
All light blue, fast refresh	6h / 12h	12h / 24h	23h / 47h

As you can see, the dive hours on a battery vary from about 6 hours to 41 hours with an ER14335M battery or from 13 to 83 hours with an ER17335M battery, depending on the settings used. The longest battery life is obtained by using the simple layout, all green colors, slow refresh rate, with the stop watch off.

Please note that storing a battery inside a unit also affects the battery life, as the unit uses power even when it is turned off. If you are not going to use your KAON for one month or more, you should remove the battery during storage.

Table 3 - Battery dive time on default settings if battery is left inside the unit
ER14335M battery / ER17335M battery

Months inside unit	**Dive time on default settings**
1 month	28h / 60h
2 months	21h / 48h
3 months	14h / 36h
4 months	7h / 24h
5 months	0h / 12h
6 months	0h / 0h

CHANGING THE KAON's BATTERY

Here is a description of the battery change and O-ring change procedure. You can also refer to the short video on correct battery changes provided here: www.liquivision.com/videos.php

1. Make sure your work area is dry and clean.

2. Prepare all your materials:

For keeping KAON & O-ring clean:
 - Lint-free cloth
   (e.g. cloth for cleaning your eye/sunglasses)
 - Glove

For battery change:
 - Spare battery
 - Coin (to unscrew battery cap)

For O-ring change:
 - Spare O-ring
 - O-ring lubricant

3. Clean your KAON unit

 - Wash of any salt or other residue
 - Dry the unit
 - Wipe off any dust or lint with a lint-free cloth

4. Unscrew the battery cap with a coin

 - Gently turn counter-clockwise

5. Continue with your fingers

6. Place the battery cap aside, on its back

7. GENTLY pull the battery holder out

 - Use your fingers to grab the little screw sticking out of the battery holder
 - GENTLY pull the battery holder out of the casing

- ☝ Pulling too hard can break the wires!!!

8. Pull out just enough to access the battery

 - ☝ DO NOT pull out all the way! It can break the wires!

9. Remove the old battery

 - Lift at the front of the battery, away from the spring

10. Insert new battery

 - Flat end against the spring in the back
 - "Bumpy" end in the front

11. Slide battery holder back in CORRECTLY

Make sure to insert the holder with the battery facing up by aligning the lower part of the battery holder parallel to the unit's bottom

Gently push the holder all the way into the compartment. DO NOT FORCE IT! It should have a tight but smooth fit.

12. Screw in the battery cap
1. Place the cap lightly in the opening
2. **First…**Turn counterclockwise until it "clicks" – this will help align the threads.
3. **Then…** turn clockwise to tighten the cap.
If something feels wrong, stop and start again.

- ☞ DO NOT force the cap – you could damage the threads!

Screw the battery cap on the compartment using your fingers. NEVER overtighten the battery cap. User your fingers, NEVER use a coin.

First….
CLICK!
Then….
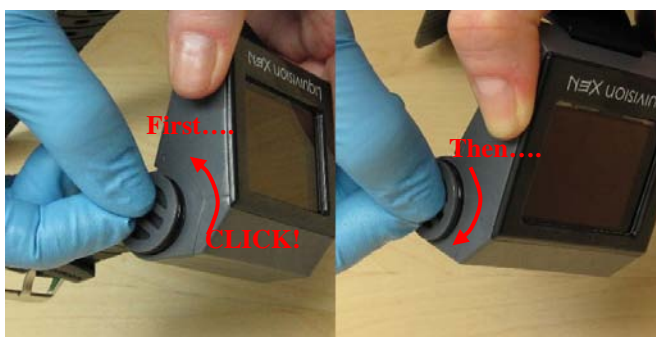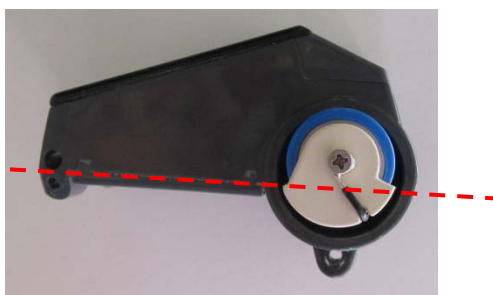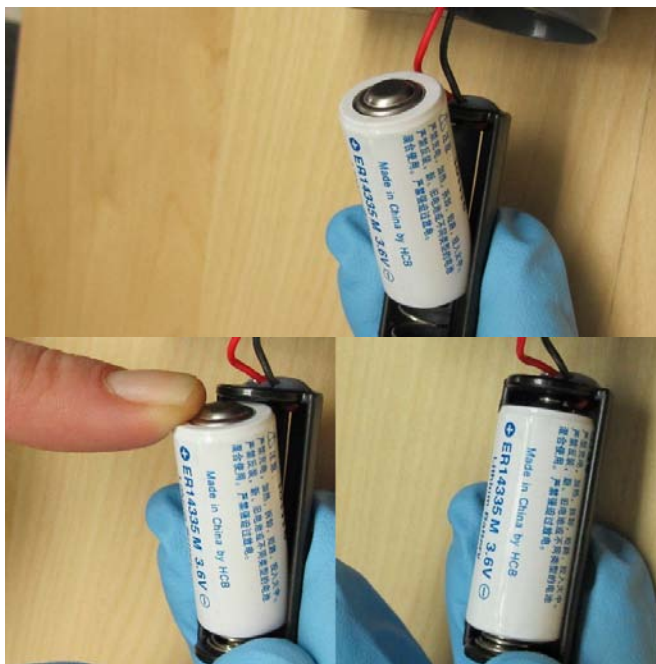
OPTION– CHANGE O-RING
If the O-ring looks dry, cracked or worn, you may like to change the O-ring in the battery cap. If you wish to do this, continue with Step 13.

13. Remove O-ring by squeezing with fingers

 - Slide your fingers along the sides of the battery holder, squeezing tightly, to make the O-ring stick out a bit
 - Then, grab the edge of the O-ring and slide it off

DO NOT USE PLIERS

 - 👆 DO NOT use pliers or any tool to remove the O-ring, because you can scratch the casing plastic and damage it. This can prevent a good O-ring seal in the future.

14. Inspect the new O-ring for dust or defects

 - 👆 DO NOT use a dusty O-ring!
 - If the new O-ring is not clean, wash it with clear water and let it air-dry

15. Lubricate the new O-ring

 - Use silicone O-ring lubricant
 - Apply a tiny amount to a dry O-ring (it will not absorb properly if the O-ring is wet)
 - Roll the O-ring between your fingers to spread the lubricant
 - Remove any excess lubricant with your fingers
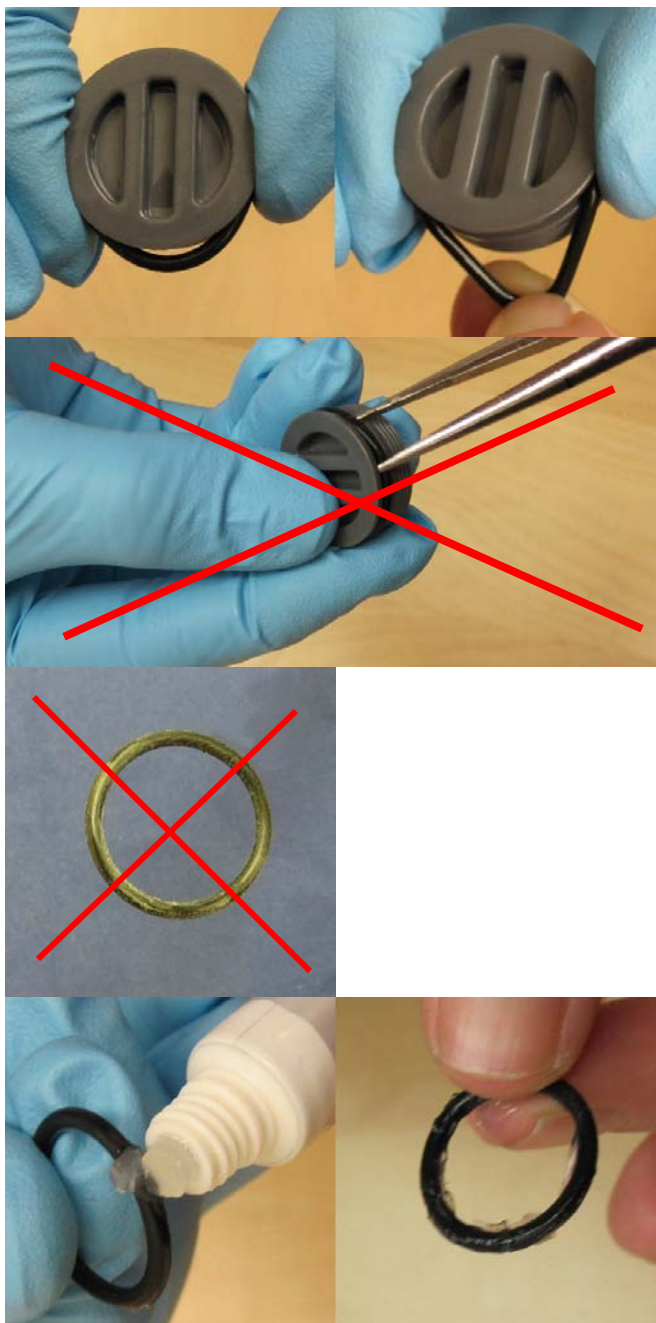
16. Ease O-ring onto battery cap

- Starting at one side, gently ease O-ring over the battery cap

### 17. Check again for any dust or debris

- Remove any debris
- If there is something really stuck to the O-ring, better remove it, clean it and start again

18. Also check the casing for dust or debris

19. Screw in the battery cap

1. Place the cap lightly in the opening
2. **First…**Turn counterclockwise until it "clicks" – this will help align the threads.
3. **Then…** turn clockwise to tighten the cap.
If something feels wrong, stop and start again.

- ☝ DO NOT force the cap – you could damage the threads!

Screw the battery cap on the compartment using your fingers. NEVER overtighten the battery cap. User your fingers, NEVER use a coin.
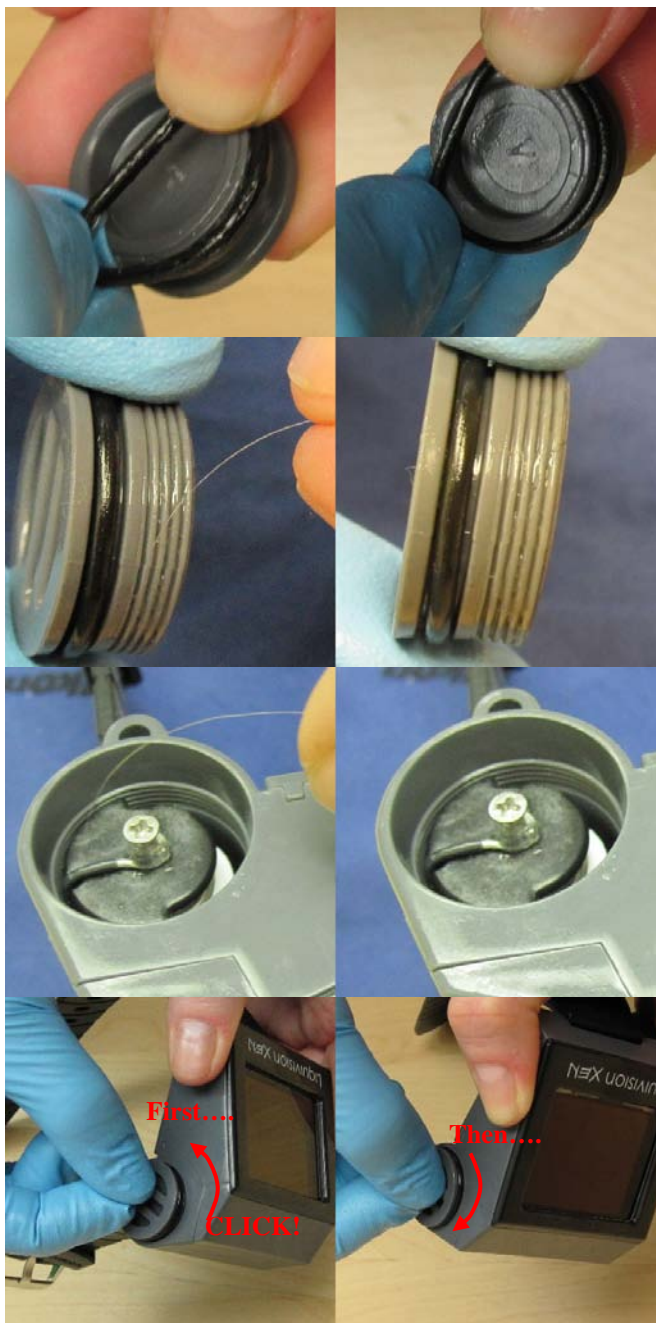
KAON PC INTERFACE

The KAON PC Interface can be used to download your dives and to update your KAON software. This requires a few different steps which vary slightly depending on whether you are a PC or a Mac OS X user.

1) PC Users: Install Drivers onto your PC, so your PC knows how to "talk" to the PC interface.
2) All Users: Install the Liquivision Dive Logger onto your PC, so your PC knows how to interpret the dive log data emitted by the KAON.
3) All Users: Install the Liquivision Firmware Updater onto your PC, so your PC knows how to transmit a Firmware Update to your KAON
4) All Users: Install Liquivision Firmware Updates onto your KAON.

We will walk you through all these steps in some detail, with links to all the relevant downloads.

> **IMPORTANT - Installing new software on your KAON may reset your unit's memory.**
> For this reason, prior to starting the install, you should make sure:
> You have downloaded any dive logs
> You have your free KAON Unlock PIN Code available
> You have your paid KAON CCR Unlock PIN Code available, if you purchased it

If You Are a PC User You First Need To Install Drivers Onto Your PC

Before you can download dive logs or upgrade your KAON firmware, you need to download and install the appropriate drivers for your PC or Mac. The drivers are made by FTDI. If you are technically-minded and want more information on them, you can visit www.ftdichip.com.

Make sure that your KAON PC interface is NOT plugged in to your desktop computer. If it is plugged in, then please UNPLUG it before proceeding.

PC Drivers: Internet Explorer
- Click here to download the driver install package. (http://liquivision.com/downloads/EnlightenedDriversSetup.exe)
- You will be asked if you want to "Run" or "Save" the program. Click "Run."
- The file will download and launch.
- The drivers will be installed. You will briefly see a black window pop up and then disappear.
- If you do NOT see the black command window pop up for several seconds, then please repeat the process.
- Once the black command window has appeared and finished (disappeared), then plug in the KAON PC interface into your desktop computer. Plug the USB cable into the KAON PC interface box, and then plug the other end of the USB cable into your PC. The "Found New Hardware" wizard will launch. Click "Do not connect to the Internet", and continue the prompts. At the end, Windows should inform you that your "New Hardware is Ready to Use."

PC Drivers: Firefox
- Click here to download the driver install package. (http://liquivision.com/downloads/EnlightenedDriversSetup.exe)
- You will be asked if you want to save the file. Click "Save File."
- The downloads window will pop up (if it does not, go to Tools->Downloads)

- The top item in the downloads window will be "EnlightenedDriversSetup.exe". Double click on it.
- You will be asked "Are you sure you want to launch EnlightenedDriversSetup.exe"? Click OK.
- The drivers will be installed. You will briefly see a black window pop up and then disappear.
- If you do NOT see the black command window pop up for several seconds, then please double click on "EnlightenedDriversSetup.exe" for a second time, in the downloads window.
- On some computers, anti-virus software will clear the download window automatically. If that is the case on your computer, you will need to browse to your personal downloads folder, and launch EnlightenedDriversSetup.exe from there directly.
- Once the black command window has appeared and finished (disappeared), then plug in the KAON PC interface into your desktop computer. Plug the USB cable into the KAON PC interface box, and then plug the other end of the USB cable into your PC. The "Found New Hardware" wizard will launch. Click "Do not connect to the Internet", and continue the prompts. At the end, Windows should inform you that your "New Hardware is Ready to Use."

PC Drivers: Google Chrome
- Click here to download the driver install package.
  (http://liquivision.com/downloads/EnlightenedDriversSetup.exe)
- When the download is finished, a tab will appear in the far lower left corner of Chrome.
- Left click on the "EnlightenedDriversSetup.exe" tab that appears in the far lower left corner of Chrome.
- You will be prompted to run the program, click "Run."
- The drivers will be installed. You will see a black command window pop up and then disappear.
- If you do not see the black command window, please click on the "EnlightenedDriversSetup.exe" tab on the lower left of the screen, for a second time.
- Once the black command window has appeared and finished (disappeared), then plug in the KAON PC interface into your desktop computer. Plug the USB cable into the KAON PC interface box, and then plug the other end of the USB cable into your PC. The "Found New Hardware" wizard will launch. Click "Do not connect to the Internet", and continue the prompts. At the end, Windows should inform you that your "New Hardware is Ready to Use."

Advanced Users
If you are an advanced PC user and would like more information, click here
(http://www.ftdichip.com/Drivers/D2XX.htm) to visit the FTDI's website, and select your OS and install the latest version of the D2XX drivers manually.

If You Are a <u>Mac OS X User</u> Please Proceed With The Next Step
There is no need to install the driver on your Mac OS X Computer. The drivers will automatically be installed when installing the Dive Logger or the Firmware Updater

Then You Can Install the Liquivision Dive Logger Onto Your Computer
The Liquivision Dive Logger program allows you to download your dive logs from your KAON. In order to use it you must have the KAON PC interface device and if you are a PC user the FTDI drivers must be installed on your computer (as described above).

PC Dive Logger: Internet Explorer
- Click here to download the Liquivision Dive Logger installation package. (http://liquivision.com/downloads/LVDiveLogSetup.exe)
- You will be asked if you want to "Run" or "Save" the program. Click "Run."
- The file will download and the install wizard will launch.
- Follow the wizard and the Liquivision Dive Logger software will be installed.
- The wizard will install a shortcut to the Liquivision Dive Logger on your desktop. To launch the logger, double click on the shortcut. Create a username for yourself, and you're ready to go!

PC Dive Logger: Firefox
- Click here to download the Liquivision Dive Logger installation package. (http://liquivision.com/downloads/LVDiveLogSetup.exe)
- You will be asked if you want to save the file. Click "Save File."
- The downloads window will pop up (if it does not, go to Tools->Downloads)
- The top item in the downloads window will be "LVDiveLogSetup.exe". Double click on it.
- You will be asked "Are you sure you want to launch LVDiveLogSetup.exe"? Click OK.
- Follow the wizard and the Liquivision Dive Logger software will be installed.
- The wizard will install a shortcut to the Liquivision Dive Logger on your desktop. To launch the logger, double click on the shortcut. Create a username for yourself, and you're ready to go!

PC Dive Logger: Google Chrome
- Click here to download the Liquivision Dive Logger installation package. (http://liquivision.com/downloads/LVDiveLogSetup.exe)
- When the download is finished, a tab will appear in the far lower left corner of Chrome.
- Left click on the "LVDiveLogSetup.exe" tab that appears in the far lower left corner of Chrome.
- You will be prompted to run the program, click "Run."
- Follow the wizard and the Liquivision Dive Logger software will be installed.
- The wizard will install a shortcut to the Liquivision Dive Logger on your desktop. To launch the logger, double click on the shortcut. Create a username for yourself, and you're ready to go!

Mac-OSX Dive Logger (all browsers)
PLEASE NOTE: The Mac-OS X Dive Logger is only compatible with Snow Leopard and Lion (not with Leopard or any earlier versions of Mac OS).
- Click here to download the Liquivision Mac OS X Software for your KAON. (http://liquivision.com/downloads/Mac-2.02.dmg)
- You will be asked if you want to save the file. Click "Save File."
- The downloads window will pop up (if it does not, go to Tools->Downloads)
- The top item in the downloads window will be "Mac-1.71.dmg". Double click on it.
- It will mount as a drive where you then see the Liquivision Loader and the Liquivision Dive Logger.
- To install those two programs drag each one of them into the Applications folder.
- You can then start the programs by selecting them from your Applications folder by double-clicking them. Alternatively you can also launch them from your Launchpad. Create a username for yourself, and you're ready to go!

You should see a window like this pop up:
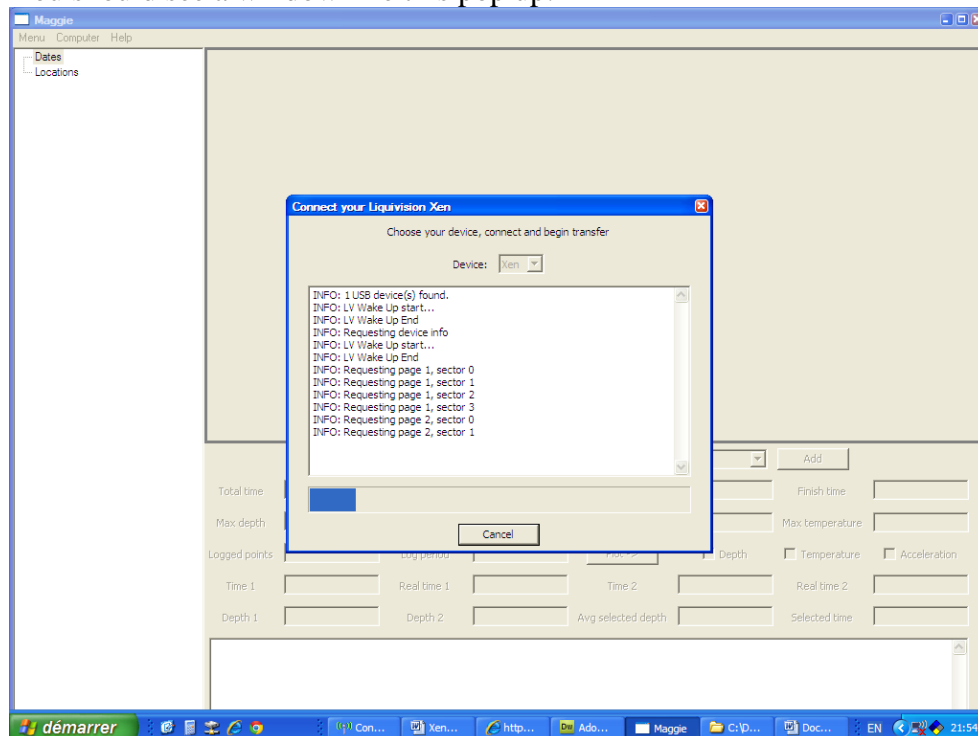
The Dive Logger will download all your dives (this will take a few minutes) which will then show up in the right column of the program. Once the dives are downloaded you can assign Dive Locations to each dive and record extra notes.

How To Install The Liquivision Firmware Updater Onto Your PC

In order to update the firmware inside your KAON, you need the KAON PC interface device, and you need to install a utility called the "Liquivision Firmware Updater." If you do not have a KAON PC interface and you would like to update the firmware on your unit, your dealer should be able to do it for you.

PC Firmware Updater: Internet Explorer
- Click here to download the driver install package.
  (http://liquivision.com/downloads/LVFirmwareSetup.exe)
- You will be asked if you want to "Run" or "Save" the program. Click "Run."
- The file will download and the install wizard will launch.
- Follow the wizard and the Liquivision Firmware Updater will be installed.

PC Firmware Updater: Firefox
- Click here to download the driver install package.
  (http://liquivision.com/downloads/LVFirmwareSetup.exe)
- You will be asked if you want to save the file. Click "Save File."
- The downloads window will pop up (if it does not, go to Tools->Downloads)
- The top item in the downloads window will be "LVFirmwareSetup.exe". Double click on it.
- You will be asked "Are you sure you want to launch LVFirmwareSetup.exe"? Click OK.
- Follow the wizard and the Liquivision Firmware Updater will be installed.

(If for some reason the downloads window is empty, then browse to the location that Firefox stores downloaded files, and double click on LVFirmwareSetup.exe from there).

PC Firmware Updater: Google Chrome
• Click here to download the driver install package.
  (http://liquivision.com/downloads/LVFirmwareSetup.exe)
• When the download is finished, a tab will appear in the far lower left corner of Chrome.
• Left click on the "LVFirmwareSetup.exe" tab that appears in the far lower left corner of Chrome.
• You will be prompted to run the program, click "Run."
• Follow the wizard and the Liquivision Firmware Updater will be installed.

Mac-OSX Firmware Updater (all Browsers)
PLEASE NOTE: The Mac-OS X Firmware Updater is only compatible with Snow Leopard and Lion (not with Leopard or any earlier versions of Mac OS).
  • Click here to download the Liquivision Mac OS X Software for your KAON.
    (http://liquivision.com/downloads/Mac-2.02.dmg)
• You will be asked if you want to save the file. Click "Save File."
• The downloads window will pop up (if it does not, go to Tools->Downloads)
• The top item in the downloads window will be "Mac-1.71.dmg". Double click on it.
• It will mount as a drive where you then see the Liquivision Loader (Firmware Updater) and the Liquivision Dive Logger.
• To install those two programs drag each one of them into the Applications folder.
• You can then start the programs by selecting them from your Applications folder by double-clicking them. Alternatively you can also launch them from your Launchpad.

How To Install the Newest Firmware On Your KAON

You should always run the latest and most recent software on your KAON. You may already have the latest version, which makes an upgrade unnecessary. You can find out which version you are running and whether you need to upgrade by comparing your software version (which you find under Preferences --> Status) to the KAON Firmware History (http://liquivision.com/downloads/KAONSoftwareHistory.php). Some early versions of the software have minor bugs which were fixed in later versions.

If you have determined that your software should be upgraded, follow the steps below. For starters:
• Make sure the Enlightened FTDI drivers have been installed on your computer (Windows only) (Instructions).
• Make sure the Liquivision Firmware Updater has been installed on your computer (Instructions)
• Connect the KAON PC interface to your computer with the included USB cable (Instructions)
• Make sure the USB cable is plugged into the KAON PC interface (see photo below)
• Place the KAON on the desk, on its side, with the PC interface aiming for the eight holes on the backplate (see photo below)
• The distance from the PC interface to the KAON should be between 2cm and 4cm (1-2 inches).

PC: Internet Explorer Firmware Install
- Click KAON Firmware History to download the latest KAON firmware. The first file at the top of the page will be the most recent version.
- You will be asked if you want to "Open" or "Save" the program. Click "Open."
- The file will download and the Liquivision Firmware Updater will automatically launch.
- You should see something like this:

Click OK, then click UPLOAD.
For further instructions, please see the "All Users" section, below.

PC: Firefox Firmware Install
- Click KAON Firmware History to download the latest KAON firmware. The first file at the top of the page will be the most recent version.
- You will be asked to open the file with the suggestion "liquivision.lvp". Click Open then OK.
- The Liquivision Firmware Installer should launch and you should see something like this:

Click OK, then click UPLOAD.
For further instructions, please see the "All Users" section, below.

PC: Google Chrome Firmware Install
- Click KAON Firmware History to download the latest KAON firmware. The first file at the top of the page will be the most recent version.
- When the download is finished, a tab will appear in the far lower left corner of Chrome.
- Left click on the "KAONFirmware.lvp" tab that appears in the far lower left corner of Chrome.
- You will be prompted to open the file, click "Open."
- You should see something like this:

Click OK, then click UPLOAD.
For further instructions, please see the "All Users" section, below.

Mac-OSX Firmware Install (all Browsers)
- Click KAON Firmware History (http://liquivision.com/downloads/KAONSoftwareHistory.php) to download the latest KAON firmware.
- The first file at the top of the page will be the most recent version.
- Download the file onto your Computer
- You can then either doubleclick the file. The firmware updater will launch automatically and you should see something like this:
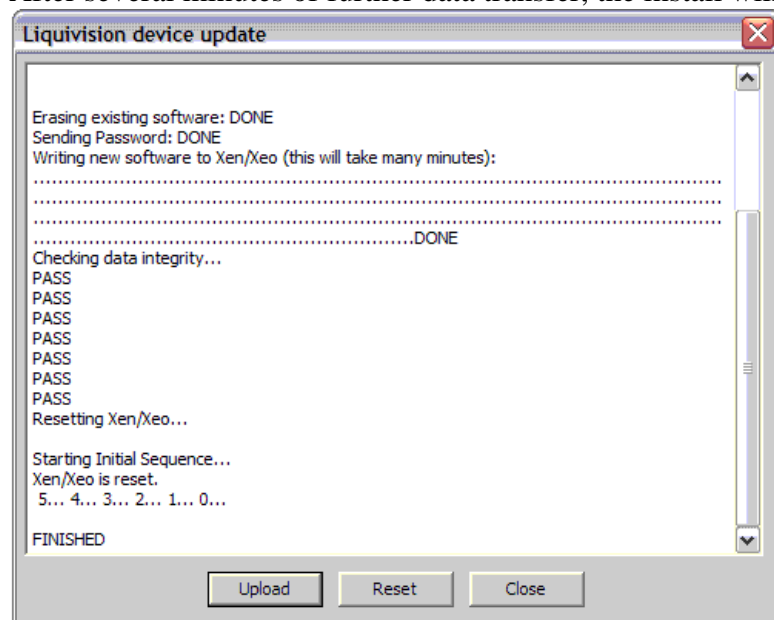

- Alternatively you can launch the firmware updater from your Applications and browse for the file on your computer
- Then click OK
- On the next screen click UPLOAD

All Users
Once you click UPLOAD, you should see something like this:
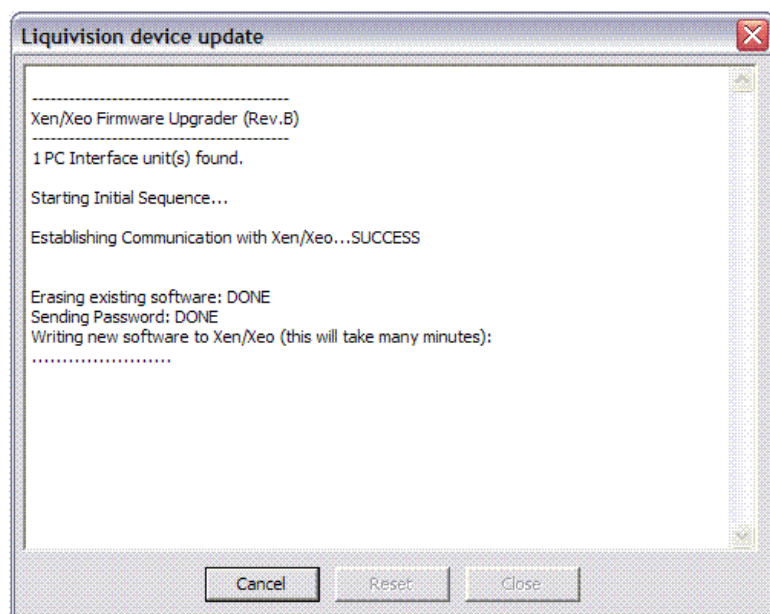
After several minutes of further data transfer, the install will finish and you should see this:

If you do NOT see the seven words "PASS" as shown above, or six words "PASS" followed by a "FAIL" (this is OK too) then the install did not succeed and you should try again.

If the install succeeded, you should now be able to pick up your KAON and use it. To verify that the install succeeded, enter the main menu, and go to Preferences->Status, and the software version should be the same as the version that you tried to install (i.e. 1.09 or something like that).

SUPPORT CONTACTS

For general information, please visit www.liquivision.com.
If you need immediate assistance, we recommend that you contact your KAON dealer.
If you need futher help, please contact us via: www.liquivision.com/contact.php .

BIBLIOGRAPHY

Baker, Eric C. "Understanding M-Values." *Immersed*, Vol. 3, No. 3, Fall 1998.

Baker, Eric C. "Clearing Up The Confusion About 'Deep Stops'."

Bühlmann, A. A., E.B. Völlm, and P. Nussberger. Tauchmedizin: Barotrauma, Gasembolie, Dekompression, Dekompressionskrankheit, Dekompressionscomputer 5th ed. Berlin: Springer Verlag, 2002. ISBN: 3540429794.

Bühlmann, A. A. Decompression – Decompression Sickness. Berlin: Springer Verlag, 1984. ISBN: 3540133089.