

# *senso7vest*

## *User Manual*

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# 1 About sens07vest

## 1.1 Overview



Sens07vest is an electronic safety device which brings back to surface any freedivers and spearfishers in difficulties.

Based on users set parameters on the sens07 app, sens07vest constantly monitors drowning risks during the dive. Once it detects a high risk of drowning, it automatically inflates a floating bladder

Warning: sens07vest is designed to protect freedivers and spearfishers up to 50 meters under water when using a 95gr CO<sub>2</sub> cylinder. Below this depth, the bladder might not inflate sufficiently to bring the diver back to surface.

## 1.2 Specifications

### 1.2.1 Sens07vest

Applications	Any kind of water sport like freediving, spearfishing, wave surfing, kiting, windsurfing or even swimming. <i>Caution: Do not use the sens07vest for scuba diving (no decompression)!</i>
Weight	1'200gr. incl. CO <sub>2</sub> cylinder.
Buoyancy	150N (around 15kg uplift). Head is stabilised in order to bring airways out of the water.
Max. depth	50m when using 95gr. CO <sub>2</sub> cylinders; 30m when using 60gr. CO <sub>2</sub> cylinders.
Fitting	Adjustable chest and crotch strap.
Sensors	Contact-free sensors (all integrated into the sens07 inflator).
Manual inflation	Pulling the manual handle triggers an inflation bypassing the electronics.
Power Switch	sens07vest is always on. Automatic activation can be disabled if legally required (not recommended).
Maintenance	No battery maintenance required (min. battery life time is 5 years or more). Physical check for abrasion every 2 years recommended. Rinse the sens07vest with fresh water after each use.
Guarantee	2 years.
Data recording	Time and depth are logged for months or years into a non-volatile memory allowing data recovery even upon physical damage (optional licence required).
Other features	Grab loop, blow tube, whistle and neck pocket with zipper for weights.

## 1.2.2 sens07 app configuration

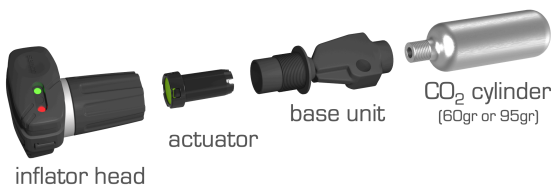
Profiles	User can configure up to 3 profiles on the sens07 app depending on the purpose of the dive (ex: different divers, missions, applications).
Basic configuration	Inflation for each profile can be programmed by time, depth or both.
Blackout protection	Manual confirmation is required to prevent inflation after returning to surface.
Suspension	Pressing the sens07vest button enables to delay upcoming inflation if more time is needed underwater. This feature can be enabled or disabled on the app.
Data transfer	Optical data transfer (flickering smartphone screen). Data transfer can be protected or blocked by a password.
Timed inflation	Inflation can be programmed on a specified time/date or with timer up to 4 months in advance (optional licence required).
Customization	Colour, logo, brand name and features of the app can be customised.

More details in chapter “sens07-app” page 5.

### 1.3 sens07vest components



The *sens07vest* contains *sens07 inflator* which can be configured via the sens07 app. The *sens07inflator* consists of 4 components:



1. The inflator head contains the electronic, sensors, red/green light indicators, battery, self-test button and the optical light sensor to configure sens07 using any smartphone.
2. The actuator gives the thrust to pierce the CO<sub>2</sub> cylinder and opens the gas flow in order to inflate the bladder. The actuator module needs to be replaced after each automatic inflation. No replacement is needed after manual inflation (pulling the red emergency handle).
3. The base unit connects the sens07 head, actuator module and CO<sub>2</sub> cylinder to the inflatable bladder. The base unit is equipped with the manual emergency handle which allows manual inflation of the bladder at any time.
4. CO<sub>2</sub> cylinder (60gr. or 95gr.) with 1/2-inch thread providing the needed gas volume to inflate the bladder up to 50 meter depth. It is important to verify that a fresh and unused CO<sub>2</sub> cylinder is inserted before each dive.

## 1.4 Activation on water contact

The *sens07 inflator* immediately starts its auto-supervision when water can be “sensed” by the contact-free water sensors (grid structure on the button side). The *sens07 inflator* automatically goes into a power-saving standby mode when taking out of the water.



However, it is possible to manually switch off the *sens07 inflator* for legal reasons like on aircrafts. Please note that switching off the *sens07 inflator* doesn't save battery and is not recommended.

## 1.5 No battery change or replacement required

Battery change or battery charge is not required during the lifetime of the *sens07 inflator* due to ultra-low energy consumption. The life-time of a *sens07 inflator* is at least 5 years, the full lifetime depends on user activity.



In the unlikely event that battery power should run low due to very extensive usage, the red LED will light up when pressing the self-test button.



## 1.6 Interactive self-test

Pressing the *sens07* button will initiate a self-test. Proper function is indicated by the green light. The self-test includes:

- Battery status
- All sensors
- Presence of a fresh and correctly inserted actuator module.



Note 1: The self-test doesn't include the CO<sub>2</sub> cylinder. Therefore, a manual check is required, see page 28 "Verify the CO<sub>2</sub> cylinder".

Note 2: Manual inflation (pulling the cord) doesn't consume the actuator. Therefore, the self-test shows the green light after manual inflation, because the actuator is still fully operational and the empty CO<sub>2</sub> cylinder is not covered by the self-test.

## 1.7 Suspend upcoming inflation in water

The sens07 button also allows the user to delay upcoming inflation. The delay can be configured by the sens07 app.



## 1.8 Blackout Mode

Many accidents happen just after surfacing (just after the dive). Therefore, the sens07vest can be set to inflate just some seconds after surfacing. The diver must press the button during a specified time after the dive to confirm consciousness in order to avoid inflation.



If the diver does not press the button in time, then the sens07vest inflates and keeps the airways out of the water.

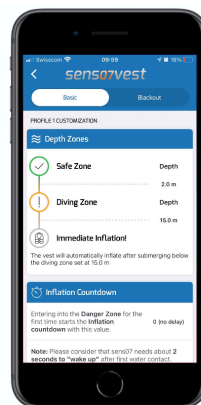
## 1.9 Customization using the sens07 app

The inflation settings of each profile can be customized using the sens07app. To transfer the data to the vest, the user needs to hold the sens07inflator face to the smartphone so it is transmitted.

The *sens07 head* can store up to 3 profiles for different divers or activities.

Holding the *sens07 button* for 2 seconds switches to the next uploaded profile.

The smartphone is not required to operate the sens07vest or to switch between the already uploaded profiles.



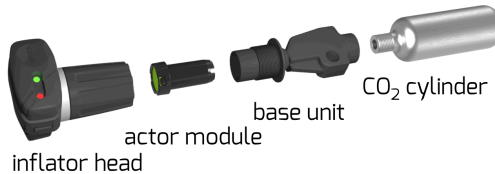
## 1.10 Data recording (optional licence required)

The *sens07 head* is able to constantly log all sensor data for weeks, months or even years, depending on the activity of the user. The recorded data is stored in a *non-volatile memory* which allows data restoration even in case of severe physical damage of the *sens07 head* or embedded electronics.



## 2 Quick-Start

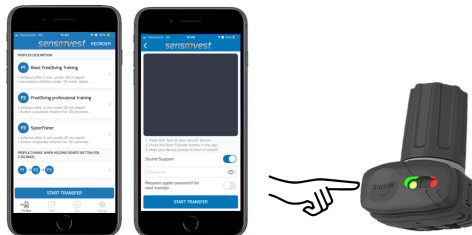
We recommend to read the manual (available on the WEB, on the sens07 app and on paper) and test the features on land. It is not needed to put on the sens07vest and test the features while diving.



Just unscrew the inflator head and emerge it without actuator module into a big bucket of water or bath. 20 to 30cm water depth is enough to understand and test the most important features.

### 2.1 First step: Register the app and test data transfer

Download the sens07 app and follow the registration process. After having a first glimpse to the manual, we recommend to test the optical data transfer. Don't worry about the actual configuration. The transfer test doesn't require meaningful configuration data.



Read section 5 (sens07-app) and follow the 5 steps below:

1. Click on *Start Transfer* on the sens07 app (profile menu).
2. Press the button on the inflator head.
3. Put the inflator head in front of the smartphone so that the front of the inflator head touches the display.
4. Wait until the display stops flickering which is also indicated by a beep (if enabled).
5. Check for the blinking green light – indicating a successful transfer.

Please check the following points in case transfer failure:

- The inflator head must touch the black screen during the full data transfer sequence (flickering screen).
- Remove any display protection (scratch protection).
- Protect the inflator head and smartphone from direct sunlight.
- Keep away from any conventional neon light or LED light.
- The inflator head waits about 20 seconds for the data transfer after pressing the button. Any data after that will be ignored.

## 2.2 Second step: Profile switching

The sens07 app is transferring 3 profiles (depending on your configuration). It is important to understand which profile is active and how to switch between them. Read the corresponding chapter and switch between the 3 profiles (including manual mode OFF).

Note: you must enable profile switch on the sens07 app in order to switch profiles on the inflator head.

## 2.3 Third step: Test depth sensor

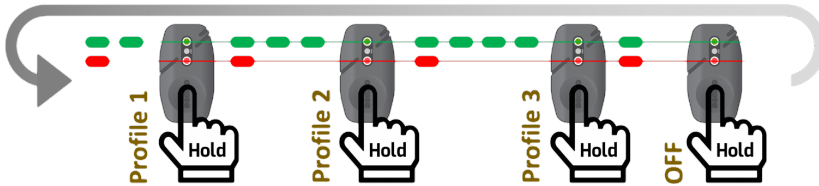
Edit the first profile and set the diving zone to 20cm and the inflation zone to 30cm. Take care that you set the time to 3 minutes or more, because you don't want to activate an inflation. Transfer and select this profile on the inflator head.

The inflator head starts to blink when emerged under water. The red LED means that the sens07 head can't detect a functional actuator module. However, the inflator head will continue to work as normal, but using the red instead of the green LED.

The LED will blink double as soon as you emerge the sens07 head below 20cm, indication the diving zone (zone 2). The inflator head will trigger inflation when reaching 30cm depth, indicated by a blinking red & green light. After that the inflator head is waiting (indicated by short red light every 10 sec) until it gets out of water.

## 3 sens07 inflator guide

### 3.1 Switching between profiles



Pressing the button for more than 2 seconds will switch to the next profile. A successful change to another profile is confirmed by a short flash of both LEDs (green and red). Straight after, the user will be able to identify the active profile by the number of green blinks (red indicates a self-test problem).

- Red & green flash + **0 flash: Manual mode (off)**
- Red & green flash + **1 flash: Profile 1**
- Red & green flash + **2 flashes: Profile 2**
- Red & green flash + **3 flashes: Profile 3**

*Note: The available profile numbers depend on your configuration. Please verify the configuration using the sens07 app in case you can't change the profile as expected.*

*Note: You must be out of water to switch the profile.*

## 3.2 Suspend upcoming inflation while diving



Pressing the self-test button when the sens07vest is submerged will suspend (freeze) the risk inflation countdown for the specified suspend time. This time can be defined by the *sens07 app*.

The suspend button works under water only. An active suspension will be cleared when reaching the Safe Zone.

The suspend button doesn't influence the blackout countdown.

This feature can be enabled or disabled using the sens07 app. When disabled, pressing the button will have no effect underwater.

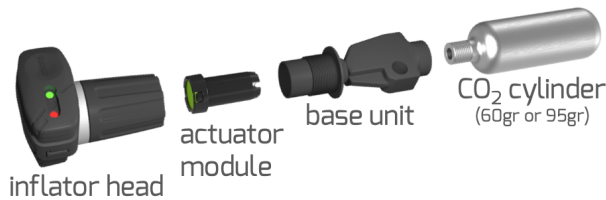
## 3.3 Manual inflation handle



Pulling the manual inflation handle will inflate the bladder in any situation (emergency inflation).

The manual inflation handle is an emergency device and works independent of the electronic, configuration or actuator module.

### 3.4 Replacing actuator module & CO<sub>2</sub> cylinder



The actuator module needs to be replaced after each inflation.

#### Disassembly of the sens07 inflator

- 1 Remove CO<sub>2</sub> cylinder by firmly rotating cylinder counter clockwise.
- 2 Remove sens07 head by rotating rippled screw nut counter clockwise.
- 3 Remove actuator module from the sens07 head and discard.

#### Rearming of the sens07 inflator

- 1 Check the expiry date (month & year) printed on the sens07 head. The date should not exceed today's date.
- 2 Insert a new unused actuator module into the sens07 head.
- 3 Install the sens07 head by screwing rippled screw nut clockwise until it meets the housing shoulder.
- 4 Install an unused CO<sub>2</sub> cylinder by rotating clockwise into base unit until CO<sub>2</sub> cylinder is secured firmly.

Perform the self-test as described in chapter 1.6 after replacing the actuator module.

## 4 LED signals

The inflator head has 2 front LEDs for important information and 3 back LEDs for system information.

### 4.1 Main LEDs on the front side



The green and red front LED give the following information:

#### 4.1.1 Water zone indicator

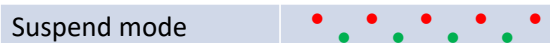
	sens07 inflator is functional	sens07 inflator has a fault
Safe zone	• • • •	• • • •
Diving zone	•• •• •• ••	•• •• •• ••
Warning zone	••• ••• ••• •••	••• ••• ••• •••

A short blink every second indicates water detection. The number of blinks corresponds to the dive zone.

The red LED is used instead of the green LED in case of a negative self-test. However, the sens07 inflator will still try to operate as expected, but there is a high chance of failure.

The blinking LED can be disabled for defence applications.

#### 4.1.2 Suspend Mode



An alternating green & red LED blink means that the button was pressed under water suspending inflation for a certain time.

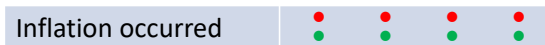


### 4.1.3 **Blackout warning**



A simultaneous and fast blink of the green & red LED after emersion in Blackout-mode indicates that an immediate user action is needed (confirm consciousness by pressing the button).

### 4.1.4 **Inflation occurred**



A simultaneous blink of the green & red LED together every second indicates that inflation was triggered and sensO7 is waiting for total emersion. Replacement of the actuator module and CO<sub>2</sub> cylinder is needed.

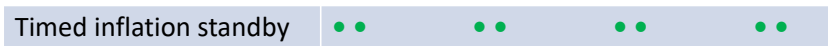
### 4.1.5 **Timed Inflation: Active**



A green light every 10 seconds indicates a running *Timed Inflation* counter. Inflation will be triggered as soon as timed inflation runs out.

Note: Timed inflation can be stopped by holding the button.

### 4.1.6 **Timed Inflation: Standby**



A green double light every 10 seconds indicates that the sensO7 inflator is in standby waiting for water contact which will start the *Timed Inflation* count-down.

Note: This standby mode can be stopped by holding the self-test button.

## 4.2 System LEDs on the back side



There are 2 LEDs (red & green) on the backside of the sens07 inflator, visible through the transparent housing. They offer more detailed system information when pressing the self-test button. They are not needed for normal operation.

### 4.2.1 Green LED: Cause of last inflation

Reason for inflation	Blink code
Exceeded time in zone 1 (safe zone)	•
Exceeded time in zone 2 (diving zone)	••
Exceeded time in zone 3 (warning zone)	•••
Entering into the immediate inflation zone	••••
Blackout protection time exceeded	•••••
Activation by Timed inflation	••••••

The number of flashes of the green LED indicates the cause of the previous automatic inflation. This information is permanently stored and can be read out at any time when pressing the self-test button. The information is cleared when inserting a fresh actuator.

### 4.2.2 Red LED: Battery low

The red LED indicates the battery status.

Battery OK	•
Battery LOW	••

In the unlikely event of low battery, the sens07 head will be replaced free of charge during the first 5 year after purchasing.

## 5 sens07-app

### 5.1 Installation

The sens07 app is available for IOS and Android. Please search for “sens07” on the AppStore / PlayStore or scan the QR code below:



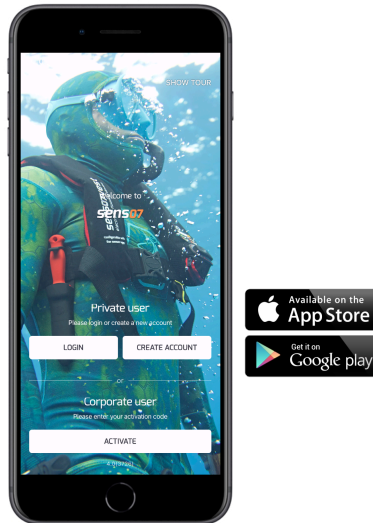
### 5.2 Introduction



The *sens07-app* allows to manage up to 3 profiles defining the way how sens07vest is operating. The profiles are transferred wireless using flickering light flashes from the smartphone screen which are received by the sens07inflator light sensor.

After profile transfer the sens07vest works completely autonomously. The sens07 app is not needed for operation.

## 5.3 Installation and registration



The sens07 app is free of charge, available for IOS and for Android devices and can be downloaded and installed from the App store and Google Play store.

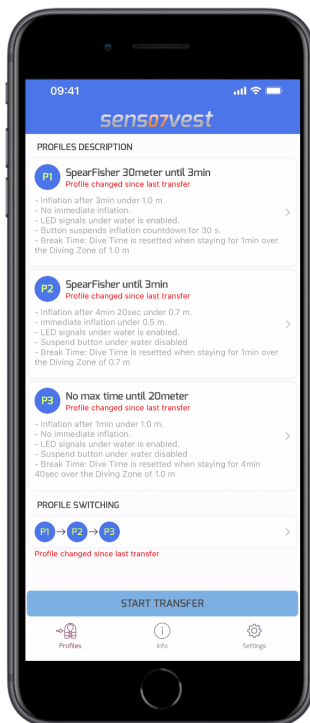
A registration code for private or corporate users is required before using the sens07app.

- **Private user:**  
Create an account by clicking on “CREATE ACCOUNT” and entering your name and Email. You will then receive a password by E-mail. Then click on “LOGIN” to enter your E-mail and password to log in.
- **Corporate user:**  
Enter the activation code you received by ProVitaTec. The activation code will customize the sens07app and consider the corporate identity (CI) definition.

Notes:

- Entering password or activation code is needed after installation or app-reset only (see settings).
- The app doesn't require Internet connection. A log-in can be done without Internet.

## 5.4 Tab 1: “Profiles”



The sens07 app can manage up to 3 different profiles defining the way the sens07vest operates. This screen “profiles description” shows the 3 profiles with a title and an automatic generated description.

- The button “Reorder” on the top-right corner adds a “handler” to each profile, allowing to move the profile up or down.
- Clicking on the profile name goes to the profile configurator.
- The last segment shows the *profile switch mode* defining the way how the profiles can be changed when holding the self-test button of the sens07 inflator.
- The button “start transfer” launches the process to transfer the profiles to the sens07 inflator (see chapter 5.4.5).

## 5.4.1 Profile configurator

### Profile info

Please specify any name for this profile.

### Submersion – Entering Dive Zone

The dive starts when entering into the dive zone starting at the specified depth. This defines the beginning of the dive time which is indicated by a blinking LED on the sens7 inflator.

The Stealth Mode will disable this blinking LED, which may be helpful for Combat divers or spear fisher for better camouflage.

### Inflation

Descending deeper than the specified inflation depth will immediately inflate the sens07 vest. This can be disabled by selecting “Unlimited”.

Reaching the specified Dive Time will also inflate the sens07 vest.

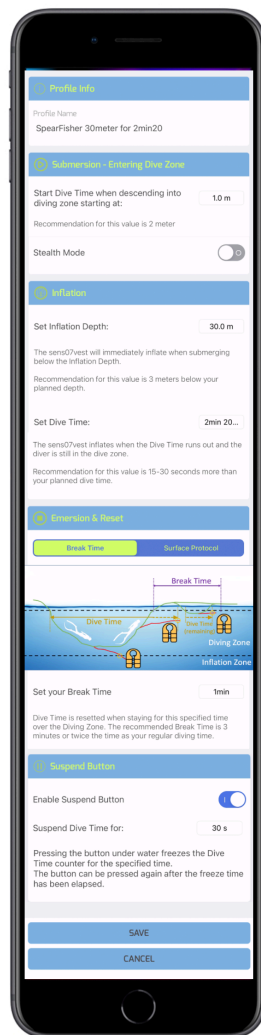
### Emersion & Reset

The Dive Time counter will be frozen as soon as you emerge above the specified Dive Zone and will continue when descending again into the Dive Zone. The Dive Time counter resets to the initial value when staying at least for the specified *Break Time* above the Dive Zone. The break time must therefore be at least the time of the recovery phase after a dive.

### Suspend Button

Another way to freeze (suspend) the Dive Timer is to press the sens07 button during a dive. This may be useful to prevent inflation during a rescue operation or diving under rocks for a specified time.

Note: Descending below the inflation depth will still trigger inflation.



### 5.4.2 Surface Protocol

Switching the slider to *Surface protocol* will change the section *Emersion & Reset*, see screenshot on the right side.

The surface protocol forces the diver to confirm a problem-free dive within the specified time by pressing the button on the sens07 inflator as soon as the diver ascends above the dive zone.

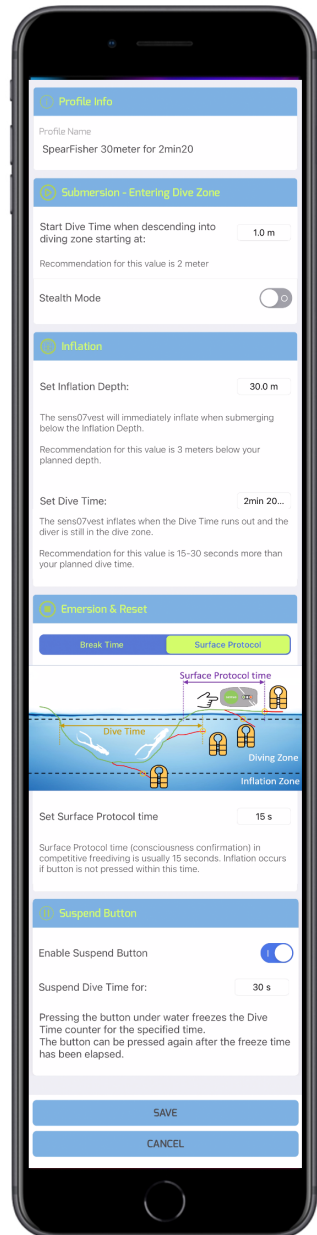
If this confirmation is missing within the specified time, then an inflation is triggered.

This surface protocol is often used in freedive competitions. However, experience has shown that the surface protocol often leads to false triggering in spearfishing, as the confirmation is often forgotten when fighting a fish.

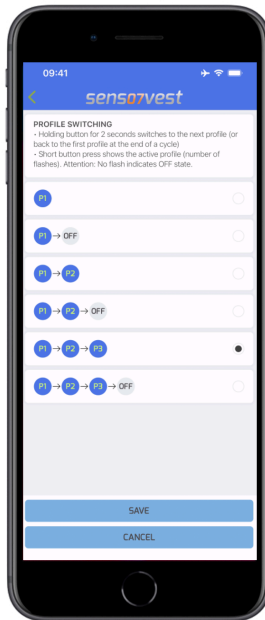
### 5.4.3 Advanced profile configurator

Depending on your sens07 app licence, a third tab “Advanced” is shown offering more detailed profile configuration.

The description of the advanced profile configurator is available in a separate manual.



## 5.4.4 Profile switcher



Clicking on this segment offers the choice of different profile switching plans, which will be applied when holding the sensO7inflator button for 2 seconds.

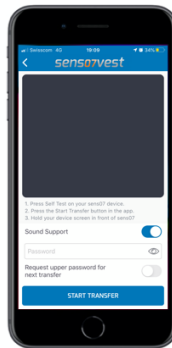
Some of them include the manual mode (off) to deactivate automatic inflation.

### Notes

- The manual handle will always inflate the sensO7vest.
- Manual mode is only needed for special legal requirements. We strongly recommend staying always in automatic mode (don't even include the OFF feature into the profile switching plan). Power consumption is not reduced in manual mode.



## 5.4.5 Start transfer



Tapping on the *Start Transfer* button offers the following options:

- **Sound support** indicates the start and end of a transfer process with an acoustic signal.
- The transferred profile can be protected by using a **password**.

### Enable password protection:

Enable the password switch and enter a password. This setting will be transferred to the sens07 inflator.

The next transfers will also require the same password.

A wrong or missing password on the next transfers will ignore the transfer and indicate the rejected transfer by a red blinking LED.

### Disabling password protection:

Deactivating password protection is done by sending the valid password but disabling the password switch.

## Transferring the profiles to the sensO7 inflator

1. Press the sensO7 button on the inflator and click on “Start transfer” on the app. Hold the phone screen against the front of the sensO7 inflator (the phone must touch the inflator).
2. Wait 10 sec. (or listen to the sound support if activated).
3. A successful transfer is indicated by the blinking green LED.

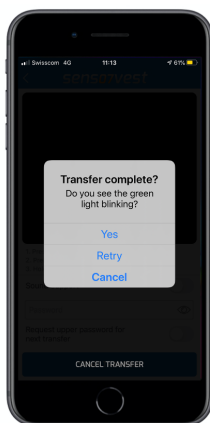
Transfer successful



4. Confirm seeing the green LEDs by clicking “Yes” on the app. Click on “Retry” in case of no blinking LED signal. This will re-launch optical data transfer. Don’t forget to press the self-test button on the sensO7 inflator again.

## Ensuring identical profile data in the app and sensO7 inflator

The sensO7 app can’t read out data from the inflator head. Therefore, it is important that you confirm a successful parameter transfer on the sensO7 app. This ensures that the parameters stored on the app and stored on the sensO7 inflator are identical.

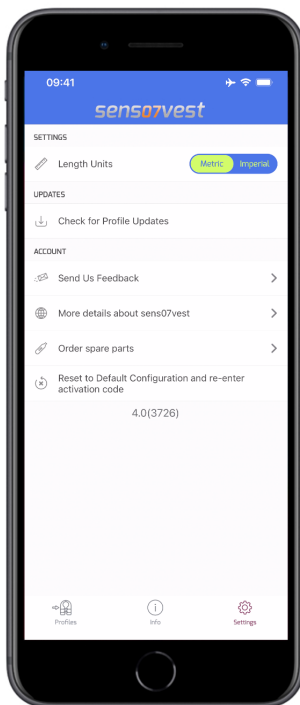


Any parameter change on the sensO7 app will mark the profile with the warning text “Profile changed since last transfer”, informing you that the profile parameters on the app and on the sensO7 inflator may not be identical anymore. This warning text will be cleared on the next successful data transfer.

## 5.5 Tab 3: “Info”

This tab shows basically this manual.

## 5.6 Tab 4: “Settings”



Offers the following features:

- Change depth units between metrics and imperial.
- Check for profile updates. You can download customized profiles based on your login. Contact ProVitaTec for more information.
- Send any kind of feedback to ProVitaTec.
- Go to the web page for more information.
- Go to the web page to order spare parts.
- Resets the sens07 profiles and returns to the login-screen. A new login is required.

## 6 Checks - before and after the dive

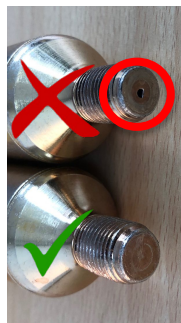
The following points must be checked before each dive:

### 6.1 Verify the CO<sub>2</sub> cylinder

Unscrew the CO<sub>2</sub> cylinder and verify that there is no visible piercing hole (see upper CO<sub>2</sub> cylinder in the picture).

After checking make sure that the O-Ring in the base unit is still in position.

Screw the CO<sub>2</sub> cylinder firmly onto the base unit. The sensO7vest uses a standard CO<sub>2</sub> cylinder with a 1/2-inch thread.



### 6.2 Check sensO7vest components

The sensO7vest consists of different mechanical components which needs to be checked before starting a dive:

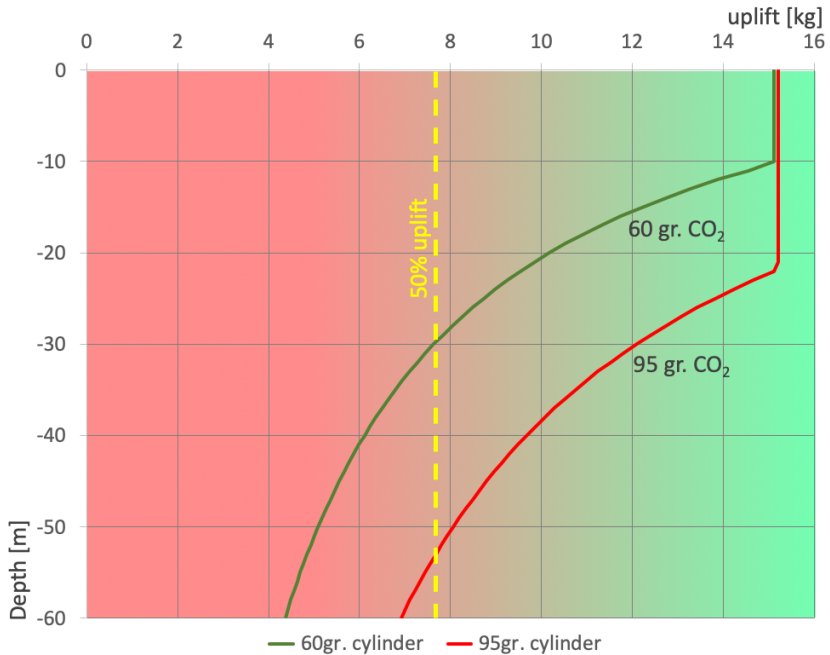


- *Bladder*: Check the bladder for any hole or other kind of damage. It is recommended to inflate the bladder every 2 years to check it for holes.
- *Straps & buckles*: Verify if the straps are well sewed and the buckles are not damaged.
- *Rubber parts*: Check if the rubber parts are not broken or brittle.

### 6.3 Choosing the right CO<sub>2</sub> cylinder & max. depth

The uplift of the sensO7vest decreases with depth (see graphic) and the negative buoyancy of the diver increases due to the reduction of the air volume in the lungs, wetsuit compression and excessive ballast.

Therefore, there is a point where sensO7vest can't bring the diver back to the surface anymore.



We recommend a maximal depth of 30m when using a 60gr. CO<sub>2</sub> cylinder or a maximal depth of 50m when using a 95 gr. CO<sub>2</sub> cylinder in order to get at least 8 kg uplift performance (about 50% of the maximal uplift performance).

## 6.4 Perform Self-Test



Pressing the button while not in water will launch the self-test.

- The green LED confirms a fully operational electronic.
- The red LED indicates an internal problem such as actuator module not inserted or already used, battery low, sensor error or other internal errors, see chapter 4.2.

In most cases, the problem is based on an already used or wrongly-placed actuator module that needs to be replaced.

Note: The CO<sub>2</sub> cylinder is excluded from the self-test!

The number of green blinks indicate the activated profile:

- 0 flash: Manual mode (off)
- 1 flash: Profile 1
- 2 flashes: Profile 2
- 3 flashes: Profile 3
- 4 flashes: Timed inflation (optional licence required)

Note: In case of a negative self-test (red LED), the sensO7 inflator will still do it's best to function as usual. The operation and principle of operation of the device does not change in case of a negative self-test. However, there is a high chance of failure and you must not use sensO7vest.

## 6.5 Location of the manual handle

Make sure that the manual cord is accessible from outside and that the cord runs directly without any diversion to the sens07 base.



The cord of the red handle can be fixed with a Velcro tag near to the zipper so that the handle is always in the same position.

It is very important that you can feel & find the handle immediately because you don't have time to search for it in case of emergency!

## 6.6 Check for leakage in case of body damage

The housing is very robust and tested at 80 meters under water during production. Nevertheless, the housing may leak due to strong shocks. To detect a leak, the sens07 inflator is equipped with 2 chemical water indicators. These 2 indicators are located underneath at the base and turn red in case of humidity.



The sens07 inflator must be replaced immediately if such a red discoloration is visible.

## 6.7 Put on the sens07vest correctly

Take care that the 2 metal buckles on the side are adjusted correctly. Don't pull them too tight so that you can breathe freely.

*Never forget to attach the crotch strap! The uplift of the bladder in case of inflation is about 15 kg.*

*Without the crotch strap the sens07vest may lift over your head, which may be very dangerous!*

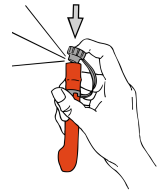
## 6.8 Rinse sens07vest after diving

The sens07vest needs similar maintenance like most scuba dive equipment. Please rinse the sens07vest in freshwater. Make sure that the water gets into the vest by opening the lower right part of the zipper. It is important that the sens07 inflator and CO<sub>2</sub> cylinders are cleaned from salt-water to avoid corrosion.



## 7 Repack the sens07vest

1. To deflate the life jacket, remove and invert the black cap on the oral inflation tube. Press down on the black cap while compressing the air chamber to remove the air from inside the bladder. Once the air chamber is fully deflated, return the black cap onto the top of the oral inflation tube.



2. Lay the jacket on a clean flat surface and flatten the air chamber and the sens07vest

3. Remove the blue neoprene coat from the CO<sub>2</sub> cylinder and replace the CO<sub>2</sub> cylinder by a new one. Wrap the CO<sub>2</sub> cylinder again with the blue neoprene coat.



4. Unscrew the sens07 head from the base unit and take out the actuator. The actuator must be replaced if the small centre pin is visible.



used

new

5. Clip the sens07 head into the frame.
6. Reset the zip by zipping both zippers against it's natural flow towards the Velcro opening.
7. Make sure the cord of the red manual inflation handle runs unobstructed out of the Velcro opening.
8. Close the flap and clamp the hard Velcro tag attached to the inflation handle in between.
9. Fold the bladder into the jacket while closing the zip.



## 8 Additional explanations & trouble shooting

### 8.1 Unsuccessful optical data transfer

A successful optical data transfer is indicated by a blinking green light after the transfer. The red light or no light at all indicates an unsuccessful optical data transfer, which may have the following causes:

- The smart phone display is too far away from the inflator head.  
**We recommend to touch the rubber sensor head with the phone display to protect the light receiver of the sensor head from other light interferences.**
- The optical data transfer is robust against ambient light (for example bright sunlight). However, neon tubes and LED lighting can emit pulsating light that is invisible to the human eye but can interfere with optical data transmission.
- Additional display protection or waterproof sleeves for your mobile phone may interfere with the optical data transfer. In case of problems, please try without the protection cover.
- The sensO7 app will set the display brightness to 100% before data transfer. Please check that, as the sensO7 app cannot control the brightness on all smart phones.
- Please disable all display colour filters like “Blue light filter” for Android or “Night Shift” for iPhone.
- Check if password is disabled.

### 8.2 No blinking when pressing the self-test button

This may happen under the following three conditions:

1. The sensO7vest is switched off, see 5.4.4 Profile switcher.
2. The housing is leaking and the electronics are damaged, see chapter 8.2 on page 34.
3. The batteries are totally exhausted due to another malfunction.

### 8.3 Unsuccessful self-test

An unsuccessful self-test will not stop the sensO7 inflator from performing its normal operation as far as technically possible. All features (like LED signals, drowning risk calculation, optical data transfer, blackout protection and even firing the activator module for inflation) are still enabled and performed as far as possible.

An unsuccessful self-test has the following 2 effects:

1. The *water zone indicator* (see 4.1.1) and self-test are using the red LED instead of the green LED
2. A malfunction at any stage must be expected.

### 8.4 Testing the sensO7 inflator without the vest

The configuration of the *inflator head* can be tested without the vest, CO<sub>2</sub> cylinder, base unit or even actuator module. Just immerse the *inflator head* into water and observe the LED for “*water zone indicator*” and “*inflation occurred*” signal in order to better understand the effect of your personal configuration.

### 8.5 Accuracy of the pressure sensor (depth)

The installed pressure sensor is very accurate. However, you may notice a difference when you compare the depth with your dive computer. This difference may have the following causes:

1. The dive computer may be up to 1 meter away from the sensO7 inflator head (sensor) when you stretch your arms.
2. The electronics need about 1 to 2 seconds to charge the ignition energy and inflate. Therefore, the trigger depth may already be exceeded until you notice inflation.
3. The depth calculation is based on fresh water. Saltwater is about 3% heavier, which can lead to slight deviations.

## 9 Air traveling with CO<sub>2</sub> cylinders

Since January 1<sup>st</sup> 2019 you can take your inflatable lifejacket systems (sensO7vest) on board the aircraft. Each passenger may carry one sensO7vest and no more than two spare CO<sub>2</sub> cartridges in their luggage. The size limits for CO<sub>2</sub> cartridges in life jackets that apply until the end of 2018 have been lifted, so even the big 95gr CO<sub>2</sub> cartridges should be accepted. These changes were made in the “Dangerous Goods Panel” of ICAO, a sub-organization of the UNO, and incorporated into the ICAO T.I. 2019-2020 released regulations so they are valid worldwide. They were also included in the dangerous goods regulations of the IATA (DGR).

### Approval required

According to ICAO T.I. and IATA-DGR the regulations require the approval of the airline to carry lifejackets (sensO7vests).

In order to avoid as many stumbling points as possible in advance, you should contact the airline when booking the flight and point out the request to carry life jacket so this permission can be noted directly on the ticket so usually all discussions are dealt with before arriving at the airport. A reference to the entry on the ticket is sufficient.

Our advice is that you always declare your inflatable lifejacket and CO<sub>2</sub> cartridges, hand in your luggage and not carry them as carry-on baggage to avoid additional questions and delays. Place the additional replacement cartridges directly alongside the lifejacket so that they can be seen together if the bag is checked.

### No obligation to transport

The airlines can refuse to take them, because there is no obligation to transport. Ultimately, it is up to each airline and finally to each captain to decide whether he/she allows the passenger, as is their right. This is very unlikely for airlines, but may happen when flying very small aircrafts (island hoppers).

## 10 Warranty

This Limited Warranty covers any defects in material or workmanship under normal use during the Warranty Period.

During the Warranty Period of two years, ProVitaTec AG will repair or replace, at no charge, products or parts of a product that prove defective because of improper material or workmanship, under normal use and maintenance.

The battery of the sensO7 inflator is covered by a five years Warranty Period. A weak or empty battery can be detected by the corresponding error code or by the absence of any light signals.

This Limited Warranty does not cover any problem that is caused by conditions, malfunctions or damage not resulting from defects in material or workmanship.

To obtain warranty service, you must first contact ProVitaTec AG under [info@provitatec.com](mailto:info@provitatec.com) to determine the problem and the most appropriate solution for you.







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