User manual

Open Source Dive Computer

heinrichs weikamp
For any questions relating to your OSTC 4, please contact us per ...

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Thank you for choosing a Heinrichs Weikamp dive computer.

Using open source software for full transparency, combined with state-of-the-art hardware and a robust housing made of aluminium, the OSTC 4 is your instrument of choice for technical diving. The firmware hwOS4 supports you both at scubadiving and rebreather diving with extensive functions and options. For trimix diving you can use up to five gases, in the rebreather mode you can choose between fixed setpoints or the monitoring with an external sensor.

The both deco models VPM-B and Bühlmann ZH-L16+GF fulfill all needs of technical diving and can be changed even while diving.

The high resolution widescreen display with 800 x 480 pixel offers brilliant colours and crystal clear displays. Despite the high display performance, the battery life of the OSTC 4 makes no concessions: The OSTC 4 operates 40 hours in dive mode and more than two years in stand-by mode. Additionally your dive computer assists you with a digital compass. Charging works wireless with inductive charging.
Data like logbook information or updates can be easily transferred with Bluetooth. Take also notice of the large supply of logbook programs and other software.

The development of Heinrichs Weikamp dive computer is permanently going on. Use the firmware updates to keep your OSTC 4 always up to date. Get the updates for free at:

www.heinrichsweikamp.com

You can use the OSTC 4 intuitively. But to become familiar with its functions and to use it in the best way, we recommend you to read this manual carefully.

We hope you enjoy diving with your new OSTC 4 dive computer!
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Common advices

Technical status

This manual corresponds to the technical status of OSTC 4 and its firmware as of March 2016.

OSTC 4, its firmware and the documentation are subject to technical changes without notice.

The OSTC 4 firmware (integrated software) is an ongoing development. To make the best use of OSTC 4, we advise you to use the latest stable firmware available on the heinrichs weikamp website: www.heinrichsweikamp.com

Standard settings

Unless noted differently, the information in this manual refers to OSTC standard settings.
About this manual

⚠️ Warning

indicates a situation that carries a significant risk or injury.

Caution

indicates a situation that carries a risk of damage to the device.

Note

indicates additional information for advanced OSTC 4 user.

Terms of use

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**Functions overview**

Your new dive computer OSTC 4 assists you with the following functions:

**Display**
- Diving depth and duration according to EN 13319, maximum diving depth, ambient temperature, duration and depth of planned decostops, time to desaturation based on diving depth and duration
- Oxygen surveillance in CCR diving (using the optional hwHUD or the ppO2 monitor)

Additional informations (e.g. tilt-compensated compass, average depth, stopwatch, ppO2, CNS)

**Planning**
- Configure and check gas mixes as well as setpoints and sensor data in CCR mode, calculate a decoplan in the simulator

**Record**
- Time, duration, depth profile, temperature, reference pressure and time of desaturation
Safety advices

Requirements

The most important factor for safe diving is a competent and well trained diver.

This dive computer is intended for experienced divers. That implies:

It is necessary that your diving education also included decompression diving. Sufficient knowledge about the laws of physics in diving is required. It may harm your health if you rely on a wrong configured dive computer.

Do not use this dive computer, if you don’t know or understand the settings and displayed information of OSTC 4. If necessary, you must be able to finish your dive safely without a dive computer.

Don’t adjust decompression parameters if you are not aware of their meanings.
Before every dive

Plan your dive
Set up a dive plan that is independent from OSTC 4 and take it with you when diving.

Make sure, that your OSTC 4 is ready for use and correctly configured.
Always confirm the following questions before diving:

Stable software?
Use only stable firmware provided by heinrichs weikamp. It has been tested and allows a proper and reliable performance of the OSTC 4.

Configured correctly?
Check the settings of your OSTC 4. If necessary, adjust the settings according to your dive plan and equipment.

Battery full?
Check the battery status using the battery indicator on the display. To ensure reliable performance throughout your dive, the battery must be sufficiently high. We recommend to recharge it at 20 percent power.

Device waterproof?
Ensure that the battery compartment is properly closed and watertight. Check
the housing for cracks or damages which might allow water to intrude.

**Safely attached?**
Make sure that your OSTC 4 can be fastened safely using either the bungees or a suitable alternative.

**Display messages?**
Check the signals of the OSTC 4. Do not dive if your dive computer displays a warning. Check the cause of the warning.
While diving

Take a backup system with you
While diving, always carry a backup system to measure duration and depth of your dive independently from OSTC 4.

Take a sufficiently long surface break before diving again.
The OSTC 4 doesn’t indicate how long to wait before the next dive. Please follow the guidelines you were taught during your dive training.

Take the OSTC 4 with you on every repeat dive – don’t lend it to anyone.
A correct calculation of tissue saturation requires that your OSTC 4 is:

• configured correctly
• used on every dive
• only used during your own dives (and not shared with other divers).
Warning

Saturation data is lost when updating the OSTC 4 firmware or in the unlikely event of a failure. In these cases, do not dive any further until tissue saturation has returned to normal level.
Safe use

Do not modify the hardware. Modifications to the hardware of the OSTC 4 can damage its proper function and can damage the watertightness of its housing.

Only the bungee backplate and the cap of the battery compartment can be removed. There is no other way to open the housing without damaging the device.

Caution

Surpassing the maximum water depth of 200 meter may cause malfunction or permanent damage of the device.

Only open the battery compartment if you have to replace the rechargeable battery. After every opening you should replace the o-ring.
Environmental conditions

Store the OSTC 4 in a cool, dry place. Permissible temperature range for use and storage: between -5 °C and 40 °C

Note

Decompression calculations and depth display are always based on the actual surface pressure. So if you are diving in mountain lakes, no further settings are needed. OSTC 4 automatically adapts to the actual surface pressure.
heinrichs weikamp delivers the OSTC 4 ready for use with a high quality rechargeable lithium battery. But nevertheless check the battery status before using the dive computer the first time.

Before diving, you need to adjust some settings as described in this manual. Familiarize yourself with the OSTC 4. It is recommended that you read this manual carefully.
Wet connector system

(optional): Connect up to three oxygen sensors using the hwHUD or the ppO2 monitor. The connection is based on a fibre optic cable that can be removed and connected also under water.
Handling

Operate the OSTC 4 with the three sensor buttons on the lower side of the housing. Always you only have to push one button. The force required to push the buttons is independent to ambient pressure. To switch on the dive computer press the left button. The starting screen appears. Now you can directly go to logbook with the left button, scroll through the custom view with the button in the middle or open the menu with the right button.
Within the menu the buttons are always used in the same way:

Left button (Back): go back/ – (decrease value)

Middle button (Enter): confirm

Right button (Next): go next/ + (increase value)

Additionally the commands are written on the lower area of the display.
The **menu** is composed in tabs like you know from internet browser. One tab is always in the front. In the upper line you see the menu items, with the right button you can scroll the items. To enter one item press the middle button (Enter). Now you can scroll again through the items and select one with Enter.
To **decrease or increase a value** choose the value with Enter (the line will change colour to grey) and press – (left) or + (right). Confirm with Enter and you can go to the next value. When all values are confirmed, the line turns back to black colour and you can go to the next item. To quit the submenu press left (Back).
When the OSTC 4 is in **OC mode** for scuba diving (already preset) the menu shows six tabs that are grouped in the following items:

- OC (gaslist and gas setup)
- DECO (settings for the decompression)
- SYS (device settings and Bluetooth)
- SIM (simulator)

When the OSTC 4 is in **CC mode** for re-breather diving the menu shows eight tabs that are grouped in the following items:

- OC (gaslist and gas setup)
- CC (diluent gases and setup)
- SP (fixed setpoints and setup)
- DECO (settings for the decompression)
- SYS (device settings and Bluetooth)
- SIM (simulator)
Modes of operation

OSTC 4 has three modes of operation and switches automatically between them:

Surface mode, dive mode and sleep mode.

In surface mode you can adjust the settings for the next dive, adjust the base settings of the OSTC 4 and read recorded dive data. To wake up the OSTC 4, push the left button.

The OSTC 4 switches automatically into dive mode when it is at least 1,6 meter below the surface for five seconds. After diving the OSTC 4 shows a countdown of five minutes. When you dive again within this time the whole process will be stored in the logbook as one dive. When you stay out of the water, the dive computer changes first to surface mode and then automatically to sleep mode.
For a pre-dive check of the functions and settings, we recommend to switch on the dive computer manually before every dive.

It is not possible to switch from dive mode to surface mode underwater. You cannot change the base settings while diving.

When the OSTC 4 isn’t operated at the surface, it switches first into surface mode and then into sleep mode to save battery.
**Modes of diving**

In the menu you can choose under **DECO** (decompression calculation), if you want to use the OSTC 4 for scuba or rebreather diving. The chosen dive mode is shown permanently on the main display (OC, CCR).

Go to **dive mode** and confirm with Enter. Now you can choose between open circuit (OC) and closed circuit (CC). OC mode is pre-set on your OSTC 4.

The decompression calculation for OC and CCR is done with the Bühlmann model ZH-L16+GF with gradient factors or with VPM-B (read more on page 43). Under **DECO** you can choose between ZH-L16+GF and VPM-B. There you can also adjust the gradient factors for the Bühlmann model and the levels of conservatism for the VPM-B.
Compass calibration

The OSTC 4 has a tilt-compensated electronic compass. Like all electronic compasses it must be calibrated before use. The calibration compensates aberration that can be caused by the battery.

For an exact heading, the calibration of the compass is absolutely necessary.

Aktivate the compass calibration in the menu **SYS**. Go to **Compass**. In the calibration menu you can start the calibration or quit the menu.
After starting the calibration menu, move the dive computer slowly around each axis. Do this a number of times within 60 seconds. After this while the calibration ends automatically. During the calibration routine the OSTC 4 shows the values for the x-, y- and z-axis.

**Note**

The order of the axis rotation is not important. Keep OSTC 4 away from any metallic object during the calibration process (at least 50 centimeters).
Displays in surface mode

In surface mode the OSTC 4 shows some displays permanently on the main display. Some custom views in the center can be switched.
Permanent items

In surface mode the OSTC 4 shows the following items permanently:

• ambient pressure, clock, date
• temperature
• battery level
• dive mode: open circuit (OC) or closed circuit (CC)
• sensor data (CCR diving)
• after the dive: surface interval, no fly time/desaturation (alternating)
• warnings for missed deco and too high CNS
• first gas (gas which is used at the beginning of the dive)

Selectable items

In the center of the display you can see extra information in the custom view. You can switch them with the middle button.

• personal text (up to 48 characters)
• compass
• O2 sensor values in CCR mode
• desaturation diagram (After the dive, you can see the approximate tissue saturation for nitrogen, helium and oxygen in the desaturation diagram.)
**Menu functions**

In surface mode you can adjust the settings to prepare the next dive, adjust the base settings of OSTC 4 and review your dives in the logbook. Open the menu with the right button (Menu).

**OC - Gaslist and gas setup**

Under **OC** you can configure presets for five gases for scuba diving as well as five bailout gases for rebreather diving. While diving these gases are available for your gas change.

The presets are marked like this: AIR for compressed air (21 % oxygen), NX for Nitrox, Oxy for 100 % oxygen, HX for a oxygen helium mix without nitrogen (e.g. 10/90).
Configure mix

For every gas you can set the percentage of oxygen and helium.

Go to OC, choose your gas and press Enter to get details or to change values. In the first line appears the gas and its MOD (maximum operating depth).

The first value is always the oxygen, the second one the helium. For example: 17/30 means a trimix with 17 % oxygen and 30 % helium. 50/00 means a Nitrox with 50 % oxygen. For pure oxygen choose 99/00.
Confirm the line with the gas value with Enter. Now you can decrease or increase the value with – or +. Confirm the value with Enter.

To your orientation the OSTC 4 shows the calculated maximum depth (MOD) that results from your settings for ppO2 (partial pressure of oxygen).
Gas type

Each mix can be set to the following type: First, Deco, Travel or Inactive. Choose your gas and go to gas type. With Enter you can choose your gas type.

First: The first gas which is used when the dive starts. Only one gas can be marked as first. If there is only one active gas, it will be automatically first gas. In the view the first gas is marked with *. Each gas can be marked as first gas.

Travel: Gases used for descending or as bottom gas

Deco: Gases used for decompression

Inactive: Gas is disabled and is not taken into account for the decompression prognosis.

Inactive gases are shown dimmed.

The OSTC 4 always computes the tissue load and the decompression scheme using the selected gas. It takes all deco gases in account for the decompression phase.
The change of deco gases with configured change depth will be advised underwater.

---

**Note**

The first gas is used when starting the dive. All gases (even disabled ones) can be chosen underwater. If you change to an inactive gas the decompression calculation will be adjusted and calculated from new.

---

**Change depth**

To set the operation depth for your deco gases, select **Change depth**. Now you can adjust the value with – or +. The chosen operation depth will turn red if the change depth is deeper than the maximum operation depth (MOD). Use **Reset to MOD** to reset the value to the MOD.

The change depth can only be configured for deco gases, not for travel gases.
Examples

Dive with only one gas: Configure one gas, for example gas 1 as first. Set up the mix of your gas. Disable the other gases (Type: inactive).

Dive with one additional decompression gas: Set up the first gas. Enable one other gas as deco and set up your gas mix. Disable the remaining gases.

Dive with two decompression gases: Set up another gas to deco and configure the second deco mix.

Dive with two decompression gases and one travel/bottom gas: Additionally to the first gas and the two decompression gases, configure a fourth gas as travel. Disable the unused gas.
Note

In surface mode the actual gas list is shown in the menu under OC, in dive mode it is shown in the menu (right button). In dive mode you can see which gas fits to the current depth (dynamic gas list). Gases with a too high or too low ppO2 turn into red.
DECO - Deco settings

In the menu **DECO** you can set the dive mode of the OSTC 4 (OC or CCR) and configure all important settings for the decompression calculation.

The **DECO** menu has two tabs.

### Tab 2/6

<table>
<thead>
<tr>
<th>OC</th>
<th>DECO</th>
<th>SYS</th>
<th>SIM</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dive Mode</td>
<td>Open Circuit</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ppO2&lt;sub&gt;max&lt;/sub&gt;</td>
<td>1.40 bar</td>
<td>deco 1.60 bar</td>
<td></td>
</tr>
<tr>
<td>Safety stop</td>
<td>1 minutes @ 5 m</td>
<td></td>
<td></td>
</tr>
<tr>
<td>FutureTTS</td>
<td>5 minutes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Salinity</td>
<td>0 %</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Tab 3/6

<table>
<thead>
<tr>
<th>OC</th>
<th>DECO</th>
<th>SYS</th>
<th>SIM</th>
</tr>
</thead>
<tbody>
<tr>
<td>Algorithm</td>
<td>VPM</td>
<td></td>
<td></td>
</tr>
<tr>
<td>VPM</td>
<td>+2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>GF&lt;sub&gt;low/high&lt;/sub&gt;</td>
<td>30/85</td>
<td></td>
<td></td>
</tr>
<tr>
<td>aGF&lt;sub&gt;low/high&lt;/sub&gt;</td>
<td>95/95</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Last Deco</td>
<td>3 meter</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Dive mode

Under **dive mode** you can toggle between open circuit (OC) or closed circuit (CC).

**ppO2 max**

Settings for maximum and minimum value of oxygen partial pressure (ppO2).

Choose **ppO2 max** with Enter. The first value is the ppO2 for the entire dive. With the second value which is signed as “deco” you can choose a different value for the decompression.
Safety stop

You can adjust your safety stop: The lapse of time ranges from 1 to 5 minutes and the depth from 3 to 6 meter. After a dive within the no deco limit (NDL) it is displayed as a countdown split to the second.

The safety stop is deactivated when the minutes are on 0 (zero).

Future TTS

The future TTS makes a deco forecast. It shows you the total time to surface (TTS) if you stay on the actual depth for some more minutes.

You can set this value between 0 (disabled) or 10 minutes. For example: “Future TTS @5” shows your TTS in five minutes.
Salinity

This setting allows you to adjust if you are diving in fresh water or salt water. This value affects slightly the display of actual depth and maximum depth. The default for salinity is 0 % (fresh water).

The value range is from 0 % to 4 %.

Note

Decompression information in your OSTC 4 is based on absolute pressure and not on relative pressure. Therefore salinity does not effect this calculation.
Decotype

Toggles between decompression calculation using the Bühlmann ZH-L16+GF or the VPM-B algorithm.

The Bühlmann model **ZH-L16+GF** with gradient factors (GF) calculates with deeper decostops and a much bigger safety margin to the maximum values (M values) than the classical Bühlmann model (without GF). The GF low controls the allowed saturation for the deepest decostop, the GF high does it with the highest decostop. OSTC 4 is set up to a GF low of 30 percent and a GF high of 85 percent (GF 30/85). With a GF low of 30 percent, you start your decompression with a safety margin of 70 percent to the M-value. The GF high comes closer with 85 percent, until you can finish your dive.

The model **VPM-B** (Varying Permeability Model) is a modern decompression model that tries to minimize the generation of micro bubbles in the tissues. Therefore it calculates how big the micro bubbles can get in the several pressure environments and tries to keep their values under the critical radius. The decompression plan is calculated iteratively, that means the presumption is always calculated from new to get the critical radius. Of course, only the result
is shown. Additionally the VPM-B model uses a Bühlmann safety.

The VPM-B model generally starts decompression on deeper stops than the Bühlmann model, but the total time to surface (TTS) is very similar.

⚠️ **Warning**

Only change values for decompression calculation if you are aware of their meanings. The default settings of the deco parameters are established and proven. Changes have direct influence on the decompression calculation and modify the conservatism of the deco model.
VPM

Settings for the levels of conservatism in the deco model VPM from 0 (progressive) to +5 (conservative). Common is the setting +2, it is already preset.

The levels of conservatism use the following values for the Bühlmann safety:
0 = GF 100/100
+1 = GF 98/98
+2 = GF 95/95
+3 = GF 93/93
+4 = GF 90/90
+5 = GF 88/88

GF low/high

Settings for the GF values in the deco model ZH-L16+GF. The first value shows GF low, the second shows GF high. The GF is preset to 30/85. The GF low can be set from 10 to 99 %, the GF high from 45 to 99 %.
The preset GF 30/85 corresponds to a modern and safe algorithm. When you change the GF, think good about how your dive plan has to be according to it.

**aGF low/high**

Settings for an alternative GF pair which can be switched while diving. The aGF low can be set from 10 to 99 %, the aGF high from 45 to 99 %.
Last deco

Setting for depth of last decompression stop. Choose here if the OSTC 4 shall calculate its last stop at 3, 4, 5 or 6 meter. Default is on 3 meter. If you have heavy waves, a deeper last deco stop can be better.
SYS - System settings

With SYS you can make device settings, calibrate the compass and activate Bluetooth.

The menu SYS is composed of two tabs.
**Bluetooth**

Aktivate the Bluetooth connection. Read more on page 91.

**Compass**

Calibrate the digital compass. Read more on page 28.

**Display brightness**

Display brightness in OSTC 4 is controlled automatically with an ambient light sensor. The three settings Eco, Medium and High set different maximum and minimum values for this control loop. In most cases the default Eco is recommended. Only if OSTC 4 is often used in low depths and bright sunlight, a higher setting is recommended.
**Button sensitivity**

You can adjust sensitivity of the buttons and how strong you have to push them. The higher the value, the more sensitive the button is.

Settings from 50 % to 100 %, default is 85 %.

**Date**

Menu to set time and date. Type in the numbers with +/- and push Enter to confirm. Choose a date format:

- DDMMYY: day, month, year
- MMDDYY: month, day, year
- YYMMDD: year, month, day
Note

You can also set up time and date with your personal computer. With the computer you can also put in the personal text on the main screen and do a lot more settings.

Language

The OSTC 4 can be set up in four languages: English, German, French and Italian. Choose your language with the Enter button.
Layout

With **Layout** you can choose display of depth and temperature in metric (m/°C) or imperial (ft/°F) units. You can also choose a colour scheme for the dive mode. You can choose the schemes standard (white), red, green and blue (0 to 3). On the screen you can see a preview of the scheme.

Custom views

With this menu you can personalize the display in dive mode.

In dive mode the OSTC 4 shows different custom views in the center and in the field on the left side. You can scroll this informations. In default mode the last selected view remains on the screen. With the following settings you can personalize this variable custom views.

With **Center auto return** you can configure after how many seconds the view in the center shall return automati-
cally to your preferred view. Adjustable in steps of 5 seconds from 0 to 60 seconds.

With **Center primary** you can configure which view in the center shall return automatically. You can choose from: Compass, deco plan, saturation graph, profile, gaslist OC, info (clock/EAD/EAN) and no view. Additionally in CCR mode: O2 monitor and O2 voltage.

With **Field auto return** and **Field primary** you can do the same settings also for the left field. Here you can choose from: Average depth, ppO2, stop watch, ceiling, future TTS, CNS and no view.

If you do not want the views to return automatically, put the seconds on 0 (zero).

With **Extra big font** you can switch on or off the possibility to switch to an extra big font while diving. If the menu is activated, you can choose the big font in dive mode with a press on the right and then on the left.
Information

Shows some device specific information as serial number, number of total dives, an overview of all complete charge cycles and the lowest battery voltage, hours of operation, the range of the highest and lowest temperature and the installed firmware.

Reset menu

In the reset menu you can put the settings of the OSTC 4 to its default values, reboot the dive computer and set up a logbook offset.

<table>
<thead>
<tr>
<th>Reset Menu</th>
</tr>
</thead>
<tbody>
<tr>
<td>Logbook offset</td>
</tr>
<tr>
<td>Reset Settings</td>
</tr>
<tr>
<td>Reset Deco</td>
</tr>
<tr>
<td>Reboot</td>
</tr>
<tr>
<td>Reboot RTE</td>
</tr>
<tr>
<td>Reset Logbook</td>
</tr>
</tbody>
</table>
**Logbook offset**: Adjust the number of dives shown in the logbook to your personal number of dives. Use +/- and Enter to enter the number (for example 349, if you have already 349 dives). This value will be increased automatically after every dive.

**Reset settings**: Resets all settings (not time and date) to factory defaults. It also deletes the compass calibration and the personal text. You’ll be prompted to confirm the action. The saturation, the stored dives in the logbook and logbook offset will remain.

**Reset deco**: To delete the current decompression data choose reset deco. You’ll be prompted to confirm the action. For the next dive the OSTC 4 starts decompression calculation from new, without any data of former tissue load.

**Reboot**: The CPU of the dive computer starts from new. All settings remain. A reboot of the dive computer may be required when updating the firmware.
⚠️ **Warning**

Use **Reboot RTE** and **Reset deco** only, if you don’t plan a repetitive dive within the next 48 hours.

**Reset RTE:** Usually a reboot of the RTE (Real Time Environment) is not required. It deletes saturation information, date and time. Also the information about battery life will be lost. To get this information again, you have to charge the dive computer once completely.

**Reset logbook:** Deletes all data in the logbook. The counter starts again with zero. If you want your personal number of dives to be shown in the logbook, you have to set up the number via **logbook offset**.

There is also the possibility of a cold start with a **magnet reset**. You can only do this while the dive computer is positioned on the activated charging pad.
SIM - Simulator

Use the simulator to simulate the dive mode of the OSTC 4 or to calculate the decoplan for your next dive. Using the simulator you can get familiar with your dive computer even before the first dive.
Simulate a dive

Simulated dives can be maximum 60 minutes long and are not stored in your logbook. Simulated dives don’t affect any settings of the OSTC 4. Of course there will be no influence on the tissue loads from real dives.

Select **Maximum depth** and **Dive time** for the desired simulation. Select **Start simulator** to start the simulation of the dive mode.

**Change diving depth:** In the simulator you can also change the depth and dive time while the dive computer is in dive mode.

Push repeatedly the right button. First there appears the menu for the dive mode (change gas etc.), then the adjustable values for the simulation. Choose the desired action with Enter.

<table>
<thead>
<tr>
<th>Sim</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sim:</td>
<td>+1m: descend 1 meter</td>
</tr>
<tr>
<td>Sim:</td>
<td>+5’: extend divetime for each 5 minutes</td>
</tr>
<tr>
<td>Sim:</td>
<td>-1m: ascend 1 meter</td>
</tr>
</tbody>
</table>

Quit? (Ende?): Quit dive mode simulation
During the simulation you can select if the simulation shall follow deco stops while ascending or not. Go into the menu with the right button and go to **DATA**. Now you can set a check mark at **Ascent follows deco stops**.

All other functions are similar to the dive mode and are described there (from page 68).

---

**Note**

The OSTC 4 stays 60 minutes in the simulation mode until it switches to sleep mode. Stop the simulation manually not to waste battery.
Calculate decoplan

As a planning aid, the OSTC 4 can calculate decompression stops in advance to planned dive. Hereby all settings of the OSTC 4 and the tissue load of previous real dives are taken into account.

If you are planning a repetitive dive, set up the surface interval in minutes at **Interval**.

Set the values for **Dive time** and **Maximum depth**. To start the calculation select **Calculate deco**.

When the calculation is finished, the display shows the decoplan with the planned decostops. Depth is displayed in meters (or feet), duration in minutes. The duration is additionally represented graphically. If there are more than five deco stops, more stops can be shown with **Next**.
Settings for the CCR

With your OSTC 4 you can configure all settings you need for diving with a closed circuit rebreather. For decompression calculation you can use fixed setpoint or sensor readings.

In the menu **DECO** under **Dive mode** you can switch from OC mode to CCR mode.

When the OSTC 4 is in CCR mode, two more tabs appear in the main menu: **CC** (configure diluents) and **SP** (configure setpoints).
CCR mode

In the menu **DECO** you can select under **CCR mode** if you want to use fixed set-points or sensor readings for the decompression calculation.

**Fixed Sp**: The OSTC 4 will calculate the decompression using up to five fixed set-points.

**Sensor**: Using the optional hwHUD or the ppO2 Monitor, the OSTC 4 can monitor up to three O2 sensors. Sensor readings are also used for decompression calculations.

---

**Note**

You can switch between **Fixed SP** and **Sensor** mode even while diving.
O2 sensors

In the menu **SYS** under **oxygen sensors** the OSTC 4 shows ppO2 readings of each sensor attached with a hwHUD or a ppO2 monitor (via optical input). Each sensor can be activated or deactivated. Additionally you can read mV voltages out of each sensor and see the battery level.

In case of a sensor blackout, you can activate the **Fallback**. When you have a sensor blackout while diving, there is a fallback warning and the dive computer switches to calculation with fixed setpoints. It starts automatically with the first setpoint. Manually you can choose another one.
CC - Diluent setup

In the menu CC you can configure five diluents (gas 6 to gas 10). The starting diluent (first) is marked with *.

Select your diluent in the menu CC and press Enter to see details or to change values.

To set up your mix select the gas with Enter. Now you can decrease or increase every number with – or +. Confirm every number with Enter. The setup of the diluents is the same as for OC gas setup.

Every diluent can be one of the following types: First, Deco, Travel or Inactive. Select the desired diluent and go to gas type. Select the type with Enter.

First: The starting diluent which is used in the loop when starting the dive. Only one diluent can be marked as first. If you use only one diluent, it is marked automatically as first.

Travel: Additional diluents which can be chosen underwater.

Deco: Gases which are used for decompression.
**Inactive**: The diluents is disabled and is not taken into account for decompression calculation. But it can be chosen underwater too.

Disabled diluents are shown dimmed.

To adjust the change depth for diluent go to **Change depth**. Now you can configure the value with – or +. With the command **Reset to MOD** you can put the value back to the maximum operating depth (MOD). The change depth can be configured only for deco gases, not for travel gases.

In dive mode you can make a quick gas change (better diluent). Close to the configured change depth the OSTC 4 proposes the fitting gas.
**Fixed Setpoints**

You can configure up to five fixed setpoints for the decompression calculation. Each setpoint can be set between 0,5 bar and 1,6 bar, in 0,1 bar increments. You can also configure the change depth for each setpoint. But in dive mode OSTC 4 will not indicate the change depth. Decompression calculation uses always the actual setpoint.

Calculations in mode **Fixed Sp** always start with SP1. It is marked additionally with *.

<table>
<thead>
<tr>
<th>OC</th>
<th>CC</th>
<th>SP</th>
<th>DECO</th>
<th>SYS</th>
<th>SIM</th>
<th>3/8</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>SP1</td>
<td>*</td>
<td>1.00</td>
<td>bar</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td></td>
<td>SP2</td>
<td>1.20</td>
<td>bar</td>
<td>0</td>
<td>meter</td>
</tr>
<tr>
<td></td>
<td></td>
<td>SP3</td>
<td>1.40</td>
<td>bar</td>
<td>0</td>
<td>meter</td>
</tr>
<tr>
<td></td>
<td></td>
<td>SP4</td>
<td>0.50</td>
<td>bar</td>
<td>0</td>
<td>meter</td>
</tr>
<tr>
<td></td>
<td></td>
<td>SP5</td>
<td>0.80</td>
<td>bar</td>
<td>0</td>
<td>meter</td>
</tr>
</tbody>
</table>

Back  Enter  Next
Bailout gases

Configure your bailout gases in the menu OC. The setup is the same like the setup for diluent gase.
Dive mode

Displays in dive mode

The OSTC 4 shows some items permanently, some of them can be switched in the center and in the left field.

Permanently shown items

In dive mode the OSTC 4 shows the following items permanently on the display:

- depth in meter or feet
- maximum depth
- divetime in minutes and seconds
- NDL (no deco limit) or TTS (time to surface including all deco stops) in minutes.
- actual used gas (in CCR mode: the actual setpoint or the average value of the sensor data)
- deco model (GF or VPM)
• aGF (if activated)
• dive mode (OC or CCR)
• battery status

**Selectable items**

Additional informations (custom views) can be monitored in the center or in the left field of the display. You can scroll them with the middle button (center) and the left button (field).

In the default settings the last chosen custom view remains in the foreground. In surface mode under **Custom views** you can configure if one custom view shall return automatically (page 52).
Custom views in the center:

- Compass
- Decoplan: shows all decostops with time and depth. The next decostop is shown permanently on the main display. If there are no stops necessary, the deco stops are dimmed.
- Saturation diagram: The 16 types of tissues according to the Bühlman model are arranged horizontally. The fastest tissue is on top, the slowest is below. The longer the line, the more saturated is the tissue. The red line at the oxygen bar marks the value for 100 % CNS (danger of O2 intoxication).
- Dive profile
- Gaslist OC/Bailout gases CCR
- O2 monitor (bar) and O2 voltage (mV) in CCR mode
- Info (clock/EAD/END)
- no view
Custom views in the left field

- Water temperature in °C or °F
- Average depth for the whole dive
- ppO2
- Stopwatch and average depth since activating the stopwatch
- Ceiling
- Future TTS (@+xx): shows your deco in xx minutes at the same depth
- CNS in percent
- no view
Warnings

Warnings appear in red on the display. They appear for the following items:

- low battery level
- too high/too low oxygen content
- decostop missed
- too fast ascend (red bar beneath the depth, from a rate of ascend of more than 10 m/min.
- warning for a blackout of sensors (if activated: fallback warning)
Menu functions in dive mode

In dive mode (OC) you can select your preset gases, change your deco model and reset the calculation of the average depth. During CCR diving you can select setpoints and bailout gases and switch to decompression calculation via O2 sensors. You can also use an alternative GF pair.

To open the menu in dive mode, push the right button. On the display appears Menu? Push Enter (midle button) to confirm the action.

The pre-menu Menu? avoids that you push the button by accident. Confirm within five seconds or the OSTC 4 returns to normal display.

In OC mode the dive mode menu consists of the three submenus: OC, DATA and DECO. In CCR mode the two additional submenus CC and SP are available.
OC - Change gases

In the menu **OC** you see a list of all OC gases (or bailout gases for CCR diving) that you have prepared in surface mode and also all inactive gases. To enter the gaslist push Enter. Select the gas you want to use and confirm with Enter. The selected gas appears on the main display.

In this menu CCR divers select their **bailout gases**.

<table>
<thead>
<tr>
<th>OC</th>
<th>DATA</th>
<th>DECO</th>
</tr>
</thead>
<tbody>
<tr>
<td>NX60</td>
<td>*</td>
<td>13m</td>
</tr>
<tr>
<td>NX50</td>
<td></td>
<td>18m</td>
</tr>
<tr>
<td>18/33</td>
<td></td>
<td>67m</td>
</tr>
<tr>
<td>Oxy</td>
<td></td>
<td>4m</td>
</tr>
<tr>
<td>Air</td>
<td></td>
<td>56m</td>
</tr>
<tr>
<td>Lost Gas and Extra Gas</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Note

Gases in **red** have too high or too low ppO2 to be used in the current depth. They can be selected by the user anyway.

Dimmed gases are inactive. They can be selected by the user anyway, but they have not been part of the decompression calculation. If they are activated the OSTC 4 calculates the deco from new.
If you lose a gas or forgot to configure a gas, you can catch this up while diving. Got to **Lost Gas and Extra Gas** and select the item with Enter. Now you see your gaslist from new. To remove a gas from the list, remove the check mark with Enter. In the same way you can add an inactive gas.

To configure a new gas go to **Extra Gas** and push Enter. The line changes its colour to grey. Now you can adjust the values with – (left button) and + (right button), confirm every value with Enter.

The new configured gas will be used immediately as actual gas.

<table>
<thead>
<tr>
<th>Lost Gas and Extra Gas</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>60/00</strong> *</td>
</tr>
<tr>
<td>50/00</td>
</tr>
<tr>
<td>18/33</td>
</tr>
<tr>
<td>Oxy</td>
</tr>
<tr>
<td>Air</td>
</tr>
<tr>
<td>00/00 Extra Gas</td>
</tr>
</tbody>
</table>
Better gas – quick gas change

The actually used gas turns into yellow, when you get close to the configured change depth of the gas.

Push the right button and the dive computer proposes you the fitting gas (e.g. NX50?) So you see at once which gas you shall use without entering the menu. Just confirm with Enter.
CC - Change diluents

Diving in CCR mode you can select the diluent gases that have been configured in surface mode in the menu CC. Select the gas and confirm with Enter.

Also for diluent gases there is the possibility to remove lost gases and configure a extra gas while diving (see page 76).
SP - Change setpoints

In the menu SP you can choose between the five setpoints that have been configured in surface mode. Select the setpoint and confirm with Enter.

If O2 sensors are connected via the hwHUD or the ppO2 monitor, the sensor readings can be used for the decompression calculation too. To do so, select Use Sensor.
DATA - Stopwatch and compass

In the menu DATA you can reset the stopwatch and take a bearing with the compass.

In dive mode the stopwatch is displayed in the custom view in the left field. The stopwatch starts with the beginning of the dive and can be reset in the menu DATA. Select Reset stopwatch with Enter and the stopwatch starts from new and shows the average depth since the start of the stopwatch.
To take a bearing with the compass go to **Compass heading** and confirm with Enter. The heading appears in numbers. Take your bearing and store the compass course with **Set**.

The chosen course is marked green in the compass rose in the middle of the display. The opposite heading will be marked red.
DECO - Change deco model

In the menu **DECO** you can change the deco model while diving or select an alternative GF value.

In the list under **DECO** you see which deco model is currently activated. If you want to change the deco model put the check mark at the desired deco model. You can choose between VPM, Bühlmann with gradient factors (GF) or an alternative GF value (aGF).

The OSTC 4 calculates all models simultaneously in real time, so it can provide the new model at once with all deco-stops.
Note

After diving the OSTC 4 shows a countdown of five minutes. When you descend again within this period, the whole time of diving will be saved in the logbook as only one dive.
Maintenance and care

Housing

Wash your OSTC 4 after every dive with fresh water, especially after diving in seawater. If the housing is very dirty, put your OSTC 4 over night in fresh water. Don’t use any cleaning agents or solvents.

Bungee

The OSTC 4 is delivered with bungees. The bungee wristband can be set to your arm diameter individually. To tighten the bungee, make a reef knot (tighten knot very strong). Cut remaining bungee after about one centimeter and use a lighter to melt the small remains of nylon.

Push the knot into the small hole on the backplate, so it doesn’t stick out.

The bungees are hand washable and can be replaced if necessary.
In order to replace the bungee, remove the four screws (T9 Torx) and detach the lower housing plate. Align the new bungee in the compartment and put the ends through the holes in the backplate. Only use the screws supplied with the OSTC 4 (M3x5). They are non-corrosive.

**Accessories**

Accessories like bungees, bungee wristbands, batteries, backplates, display protection shields and caps for the battery compartment are available in the online shop of heinrichs weikamp (shop.heinrichsweikamp.com) or at your dealer.
Charging the battery

The OSTC 4 has a high-capacity rechargeable battery. In eco mode it offers up to 40 hours of divetime. It takes up to six hours to recharge it completely.

Recharging the OSTC 4 works wireless via inductive charging (Qi standard). Connect the delivered charging pad to the power supply and put it on the table with the charging coil upwards. It flashes once in red and then it flashes in green every four seconds. Put your dive computer with the backsite on it. Align the pad a little bit sideways on the right and upwards. For your orientation: The pad should cover the letters OS on the backplate. As soon as it is charging the pad stops flashing and is illuminated permanently in green. Start the OSTC 4 and watch the battery indicator. When the battery sign (arrow) is permanently marked white, the dive computer is recharging optimally. If the arrow is marked yellow, the charging position is not ideal. If the pad is flashing red, a problem occurred. Start the action from new.

It might be possible that you have to move the dive computer a little bit to find the right charging position. The wireless transfer of the charging power
leads to a warming of the dive computer. This is normal and harmless. If the temperature gets too high the charging stops automatically and starts from new after cooling down.

**Note**

When the battery is completely empty the information for saturation and no fly time as well as time and date get lost.
Logbook

The OSTC 4 includes a very comprehensive logbook that stores all important information for every dive and offers various profile views.

Open the logbook directly from the start screen with the left button. Logbook entries are sorted in chronological order, starting with the most recent entry. Every entry shows position index, date, the used deco model, maximal depth and dive time.

<table>
<thead>
<tr>
<th>Logbook</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Position</strong></td>
</tr>
<tr>
<td>1</td>
</tr>
<tr>
<td>2</td>
</tr>
<tr>
<td>3</td>
</tr>
<tr>
<td>4</td>
</tr>
<tr>
<td>5</td>
</tr>
<tr>
<td>6</td>
</tr>
</tbody>
</table>
Scroll through the list with the right button (next). To see details of the selected dive, press Enter. The dive profile and details page show up. To see more profiles go on with the right button (next).

At first there is a profile with depth and temperature, then a profile with the used gases and then a profile that shows the ppO2 value during your dive.

Your personal number of dives (logbook offset) appears on the first page of the detail pages.

To quit the detail views push the left button (back).
Readout the dive computer

You can connect your OSTC 4 easily via Bluetooth to your personal computer, notebook or smartphone. So you can upload software and download your logbook. All you need is a Bluetooth capable computer. The OSTC 4 works with Bluetooth Smart Ready, depending on the receiver it activates Bluetooth 2.0 or Bluetooth 4.0.
Bluetooth

Aktivate the Bluetooth interface in the menu **SYS**. Go to **Bluetooth** and confirm with Enter. After a short while the blue-tooth is active and you can connect your personal computer with your dive com- puter. When connecting your OSTC 4 to a computer the first time, you need to “pair” them. Mostly this works auto-matically. This process depends on the operation software of the computer. In Windows: Click the Bluetooth symbol in the system tray and select the option “add device”.

When the connecting is done, the PC creates a virtual COM-port. Via this the PC software communicates with the OSTC 4. You don’t need any special drivers.

The Bluetooth connection will be stopped automatically when the dive computer turns into sleep mode.
Software for the OSTC 4

Data transfer with the OSTC 4 is supported by many software applications for all common platforms. The applications provide easy-to-operate functions for transferring recorded dive data, and for configuring and remotely controlling your OSTC 4.

On our website you’ll find a list of all OSTC 4 supporting programs and applications:

www.heinrichsweikamp.com

Updating the firmware

The OSTC 4 firmware (integrated software) is in a constant process of improvement. To make the best of your OSTC 4, use the latest stable firmware that is available at the heinrichs weikamp website: www.heinrichsweikamp.com

On our homepage you can download the OSTC Companion. With this software you can upload the firmware on your OSTC 4. You can also install the firmware with the logbook software Subsurface (free of charge).
During the firmware update the OSTC 4 goes into bootloader mode. The update consists of three parts (update of the main firmware, RTE update and font update). Do not interrupt the process and wait until it is finished. After the update the dive computer turns off and starts from new.

**Note**

We recommend you to upgrade the firmware regularly – at least once a year. Of course, updates for the OSTC 4 are free of charge.
## Technical data

<table>
<thead>
<tr>
<th><strong>Display</strong></th>
<th>High resolution widescreen display (IPS LCD) with ambient light sensor, optically bonded, field of view: 160°, resolution: 800 x 480 pixel, size: 3.2“ (79 mm screen diagonal)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Connections</strong></td>
<td>Bluetooth Smart Ready (2.0 and 4.0), optical port (wet connector system)</td>
</tr>
<tr>
<td><strong>Sensors</strong></td>
<td>Combined pressure/temperature sensor, 3D compass (fully tilt-compensated), ambient light sensor</td>
</tr>
<tr>
<td><strong>Power supply</strong></td>
<td>Rechargeable lithium ion battery (can be changed by user), up to 40 hours time of operation, stand by 2+ years</td>
</tr>
<tr>
<td><strong>Buttons</strong></td>
<td>Three integrated sensor buttons</td>
</tr>
<tr>
<td><strong>Housing</strong></td>
<td>Aluminium, milled from a single block and hard-anodized, impact-proof glass panel</td>
</tr>
<tr>
<td><strong>Size</strong></td>
<td>87 mm x 86 mm x 23 mm</td>
</tr>
<tr>
<td><strong>Weight</strong></td>
<td>290 gr.</td>
</tr>
<tr>
<td><strong>Operating depth</strong></td>
<td>200 meter</td>
</tr>
<tr>
<td><strong>Scope of delivery</strong></td>
<td>OSTC 4 dive computer, firmware by heinrichs weikamp, charging pad (inductive charging), bungee, stable neoprene box, screen protector(already installed)</td>
</tr>
</tbody>
</table>
Disposal

According to the European WEEE directive, electrical and electronic devices must not be disposed with consumer waste. Its components must be recycled or disposed apart from each other. Otherwise contaminative and hazardous substances can pollute our environment. You as the consumer are committed by law to dispose electrical and electronic devices to the producer, the dealer or public collecting points at the end of the lifetime for free. Particulars are regulated in national right.