

User manual



OSTC 2



OSTC 2 TR



OSTC plus



OSTC sport

OSTC dive computer with the firmware
hwOS sport

Your OSTC

Thank you for choosing a heinrichs weikamp dive computer!

The firmware hwOS sport which is used in the dive computers OSTC plus and OSTC 2 is specially made for the demands of recreational divers. It can be operated intuitively and easily, but yet offers a wide range of configuration options. Even for challenging deco dives, the sport edition is a reliable companion. If you want to walk new paths and develop yourself in technical diving, your OSTC will be your companion. You can update your OSTC with the firmware hwOS tech and upgrade your device (Even the OSTC sport mod. 2019) into a full trimix dive computer.

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 always up to date. Get it for free at:
www.heinrichsweikamp.com

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

Additionally you find some videos on our homepage and facebook page which offer some easy explanations (for example how to change the battery, calibrate the compass or change the bungees).

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



Contact

For any questions relating to your OSTC, please contact us:

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- E-Mail: info@heinrichsweikamp.com
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1. Common advices

1.1. Technical status

This manual corresponds to the technical status of OSTC and its firmware hwOS tech as of February 2019.

(Firmware hwOS sport 10.52)

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

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

1.2. About this manual

Read this manual carefully, so you can set up and use the dive computer in the right way. Keep this manual so you can consult it also at a later time. You also find the latest version for download as PDF on our homepage.

Special markings

! 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.

Standard settings

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

For important settings, the OSTC shows an asterisk * behind the current setting, if the current setting is different from the default setting.

Terms of use

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1.3. Functions overview

Your dive computer OSTC assists you with the following functions:

Display: Diving depth and duration according to EN 13319, maximum diving depth, ambient temperature, ambient pressure, bottom time, duration and depth of planned deco stops, time to desaturation based on diving depth and duration.

Additional informations: tilt-compensated compass, average depth, stopwatch, ppO₂, CNS.

Planning: Configure and check gas mixtures as well as setpoints in CCR mode, calculate a deco plan in the simulator.

Record: Time, duration, depth profile, temperature, reference pressure and time of desaturation.

2. Safety advices

2.1. 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:

A diving education including decompression diving is mandatory. 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 do not know or understand the settings and displayed information of the OSTC.

If necessary, you must be able to finish your dive safely without a dive computer.

Do not adjust decompression parameters if you are not aware of their meanings.

2.2. Before every dive

Plan your dive.

Set up a dive plan independently from OSTC and take it with you when diving.

Make sure that your OSTC is ready for use and correctly configured.

Always confirm the following questions before diving:

Stable firmware?

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

Configured correctly?

Check the settings of your OSTC. If neces-

sary, 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 status of the rechargeable battery must be sufficiently high. We recommend to recharge it at 20 percent of performance at the latest. If you use an AA battery for your OSTC plus you should also replace it at 20 percent of performance.

Device waterproof?

The models OSTC 2 and OSTC 2 TR are completely closed and have no openings that could cause leakages. But for safety check the housing for cracks or damages which might allow water to intrude. For OSTC plus (battery compartment), OSTC cR (S8 connector) and older models with USB port check if all openings are closed.

Safely attached?

Make sure that your OSTC can be fastened safely using either the bungees or a suitable alternative.

Display messages?

Check the screen of the OSTC. Do not dive if your dive computer shows a warning. Check the cause of the warning.

2.3. 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.

Take a sufficiently long surface break before diving again.

The OSTC doesn't indicate how long to wait before the next dive. It just shows the duration time of the interval. Please follow the guidelines you were taught during your dive training.

Take the OSTC with you on every repeat dive – do not lend it to anyone.

A correct calculation of tissue saturation requires that your OSTC is:

- configured correctly
- used on every dive
- only used during your own dive (and not shared with others)

! Warning

Saturation data is lost when updating the OSTC 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.

2.4. Safe use of the OSTC

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

Only the bungee backplate, the cap of the battery compartment (OSTC plus) and the cap of the S8 connector (OSTC cR) can be removed. There is no other way to open the housing without damaging the device.

Keep your OSTC out of children's reach. Small parts such as the battery cap (OSTC plus) may represent a choking hazard.

Caution

Surpassing the maximum water depth of 120 meters may cause malfunction or permanent damage of the device.

2.5. Environmental conditions

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

Maximum water depth for operation: 120 meters.

If you use an AA battery for the OSTC plus: Make sure that the used battery is suitable for the ambient temperature to be expected in your dives. For cold water diving (under 10°C) we recommend the use of a Lithium battery.

Note

Decompression calculations and depth are always based on the actual surface pressure. So if you are diving in **mountain lakes**, no further settings are needed. OSTC automatically adapts to the actual surface pressure.

3. Before first use

heinrichs weikamp delivers the OSTC ready to use. But nevertheless check the battery status before using it the first time.

The OSTC is attached to the arm with bungee. The bungee is already installed (Bungees, page 37). To tighten the bungee, make a knot above the circular cavity. Cut remaining bungee and use a lighter to melt the small remains of nylon.



3.1. Handling

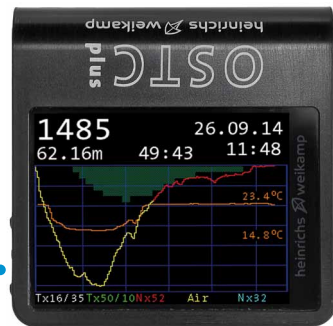
Operate the OSTC with the two piezo buttons on the left and right side of the housing. A short press is enough to trigger the buttons. You can adjust individually how sensitive the buttons shall react (look for page 16).

To turn on the OSTC, press one of the two buttons. If the OSTC does not wake up at once, it is in deep sleep mode (look for next page). To wake it up, press the button once more after 5 seconds.

From start screen you can scroll the custom view in the middle with the right button (View) and enter the menu with the left button (Menu). Inside the menu you can scroll the items with the left button (NEXT) and confirm with the right button (ENTER). You only have to press one button at a time. From the last item on the bottom, the cursor jumps back to the top with the next press.

In some menu you will find the entry MORE. Select this entry to access the next menu page with more menu items. To quit the menu or submenu, choose EXIT.

To change the setting of a menu item, press ENTER repeatedly until the required value is displayed. For important settings that vary from the default values, the OSTC shows an asterisk * behind the current setting.



MENU/NEXT

VIEW/ENTER

3.2. Modes of operation

The OSTC has three modes of operation and switches automatically between them: Surface mode, dive mode and sleep mode.

Surface mode

In surface mode you can adjust the settings for the next dive, adjust the base settings of the OSTC and read recorded dive data.

To turn on the OSTC, press one of the two buttons. If it does not wake up at once and is in deep sleep mode (look for sleep mode), push the button once more after 5 seconds.

In surface mode the display shows general information as time, date, temperature, ambient pressure and battery status. After a dive the display also shows the elapsed time since last dive, tissue saturation and the no fly time.

Dive mode

The OSTC automatically switches into dive mode when it is at 1,6 meter below the surface for five seconds (also when it is in sleep mode).

Note

We recommend that you manually turn on your dive computer before the dive to check the settings.

In dive mode the display shows current diving depth, dive time, maximum depth, the currently selected gas (in CCR diving the setpoint and the current diluent gas), decompression information and additional information.

It is not possible to switch underwater from dive mode to surface mode. You cannot change the base settings while diving. Note that exceptions apply to the **apnea mode**.

Sleep mode

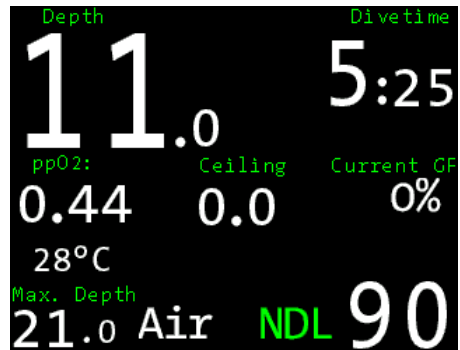
When the OSTC isn't operated at the surface, it switches into sleep mode after two minutes to save energy.

In sleep mode the display is turned off. Ambient pressure is measured at regular intervals. After diving, decompression calculation continues.

After 15 minutes in sleep mode, OSTC switches to **deep sleep mode**. In deep sleep no buttons are polled, which saves a lot of energy. Move the dive computer and wait 5 seconds until it wakes up. Now you can turn it on with the buttons.

Also in deep sleep mode the OSTC switches automatically to dive mode after 5 seconds.

The deep sleep mode only exists in the models OSTC 2 (since 2017) and OSTC plus.



The OSTC starts the dive mode automatically when it is below 1,6 meters depth.

3.3. Modes of diving

In the main menu you can choose under **Deco Setup > Dive Mode**, if you want to use the OSTC for scuba diving or apnea diving. The chosen dive mode is shown permanently on the main display (OC, apnea)

OC (Open Circuit)

Use this dive mode for scuba diving with an open circuit. This setting is preset on your OSTC.

The decompression calculation model is Bühlmann ZH-L16 without gradient factors or Bühlmann ZH-L16+GF with gradient factors (read more on page 16). You can switch from ZH-L16 to ZH-L16+GF with **Decotype**. Under **Concervatism** you can adjust the conservatism level or gradient factors.

Apnea

Use this dive setting for apnea diving or snorkeling.

In apnea mode the OSTC serves as a depth gauge. It displays depth, dive time and temperature on the main screen, clock and compass in the custom view (right button). Additionally it offers information for the whole session: Maximum depth, surface time, depth of the last descent and the total time of underwater time. Decompression calculation is switched off.

In apnea mode the OSTC remains in dive mode even when diving at low depths. You can switch into surface mode at any time by pushing the left button. Push ENTER to confirm the QUIT? question.

The OSTC switches automatically from apnea mode into surface mode after a 15 minutes delay and above a depth of 1 meter.

Apnea dives are not stored in the logbook.



The dive mode of the dive computer is shown permanently on the display. In this case OC for Open Circuit (scuba diving) is active.

3.4. Compass calibration

OSTC has a tilt-compensated electronic compass. Like all other electronic compasses it must be calibrated before use. The calibration compensates aberration that can be caused by the battery. It is also recommended to calibrate the compass if your dive computer shows deviations in the heading reading.

Start the calibration with Settings > More > Compass Calibration.

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

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 shows X-, Y- and Z-axis.



Note

The order of the axis rotation is not important. Keep the dive computer away from any metallic object during the calibration process (at least 50 centimeters).

3.5. Menu functions

In the main menu you can adjust the settings to prepare the next dive, adjust the base settings of the OSTC and review your dives in the logbook.

Logbook

Recorded data from recent dives.

OC Gas Setup

Set up your gas mix for scuba diving or your bailout gases for CCR and pSCR diving. You can configure up to five gases (air, helium, oxygen up to 100 percent).

Start Bluetooth

Start Bluetooth to connect your OSTC to a PC, Mac or smartphone.

Simulator

Calculate deco and simulate the dive mode.

Deco Setup

Settings for deco calculation and dive modes of the OSTC (open circuit or apnea).

Settings

Settings for time, language, display brightness, compass and more. Start Bluetooth and reset menu.

These functions are described in the following chapters of this manual.

4. Surface mode

4.1. Display in surface mode

Permanent items

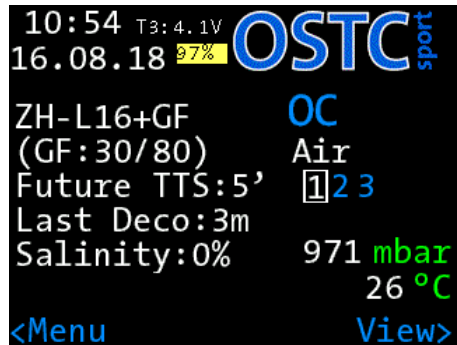
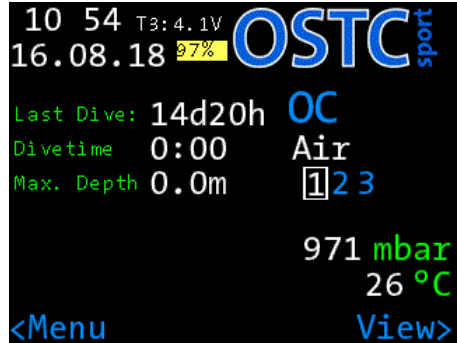
On the start screen the OSTC shows the following items permanently:

- ambient pressure, clock, date
- temperature
- battery: level, type and voltage
- dive mode: Open circuit (OC) or Apnea
- first gas for diving
- after diving: time since last dive, no fly time, desaturation and surface interval. Warnings for missed deco and too high CNS.

Selectable items

In the middle part of the display you can see extra information in the custom view. You can switch them with the right button (View).

- personal text (up to 60 characters)
- compass
- gaslist (OC)
- current settings: deco type, gradient factors, time of future TTS, last deco, salinity
- elapsed time since last dive, duration and maximum depth of the last dive
- desaturation diagram (After the dive, you can see the approximate tissue saturation in the desaturation diagram. The 16 types of tissue 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.)



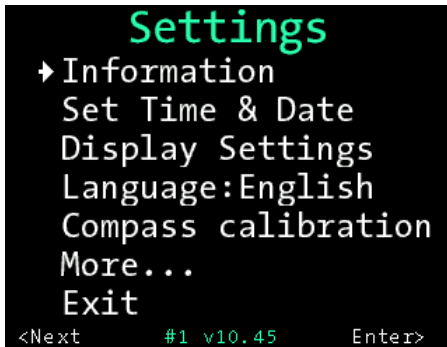
You can scroll a lot of information in the custom view, like details of the last dive (top) or the current deco settings (bottom). First gas and dive mode are shown permanently.



From the start screen you can enter the main menu with the left button (MENU).

4.2. Settings

In the settings menu you can set up basic configurations (like clock, language, display brightness, button sensitivity). You can also reset all settings and values.



With MORE you can enter further sub menus.

4.2.1. Information

Shows some device specific information like serial number, installed firmware version, number of total dives, type of battery and the total runtime.

4.2.3. Set time and date

Menu to set time and date. With **Set time** you can set the time, with **Set date** you can set the date of the internal clock of the OSTC. You can change the values for time and date with the ENTER button.

Choose a date format:

YYMMDD: year, month, day

DDMMYY: day, month, year (default)

MMDDYY: month, day, year

Note

You can also set up time and date with your personal computer, as well as the personal text on the start screen.

4.2.4. Language

The OSTC can be set up in English or German (standard). To use the languages Italian and French, download the suitable firmware from our homepage: www.heinrichsweikamp.com

4.2.5. Display settings

Brightness

The three settings Eco, Medium and High set different brightness levels for your display. Within these levels, the OSTC uses an ambient light sensor to adapt to the current light conditions (not OSTC cR). In most cases the default Eco is recommended. If the OSTC is often used in low depths and bright sunlight, a higher setting is recommended.

Setting range: Eco, Medium, High

Default: Eco

Colour scheme

Choose the colour of the display in dive mode. You can choose the schemes red, green, blue and standard (white)

Default: Standard

Units

Display of depth and temperature in metric (m/°C) or imperial (ft/°F) units.

Default: m/°C

Logbuch offset

The dives in the logbook have sequential numbers. With the logbook offset you can adjust these numbers to your personal number of dives. So the last dive is not shown as dive number 1 but as number 349, if you have made 349 dives in total yet. This value will be increased automatically after every dive (Not for simulated dives).

Salinity

This setting allows you to adjust if you dive in salt water or in fresh water. This value has a slight effect on the display of the actual and maximum depth. To increase this value, push ENTER repeatedly until the required value is displayed.

Setting range: 0% – 4%

Default: 0%

Note

Decompression information is based on absolute pressure and not on relative pressure. Therefore salinity does not affect this calculation.

Rotate screen

The display can be also shown upside down.

Default: No

Variable speed

The warning for the rate of ascent is adjusting to the depth. It varies from 7 to 20 meters per minute. If you choose »No«, the value 10 m/min will be used during the whole dive as threshold value for an ascent warning.

Default: No

Speed graph

Shows the rate of ascent in a graph, otherwise only in numbers.

Default: No

Dive timeout

After diving the OSTC shows a countdown of five minutes (pre-set). When you descend again within this period, the whole time of diving will be saved in the logbook as only one dive. You can adjust the period individually. Upon a depth of 1 meter, the dive can also be stopped manually.

Setting range: 1 – 20 minutes

Default: 5 minutes

4.2.5. Adjust buttons

You can adjust the sensitivity of the piezo buttons and how strong you have to press them. The higher the value, the harder you have to press. Press ENTER until the required value is displayed.

Setting range: 20% – 80%

Default: 40%

4.2.6. Reset menu

In the reset menu you can put the settings of the OSTC to its default values and start the dive computer from new. You can reset your decompression information and clear the logbook.

Reboot

During a firmware update it may be required to reboot the OSTC. Choose »Reboot« and push ENTER. You'll be prompted to confirm the action. A reboot also deletes the current decompression data.

Reboot deco

To delete the current decompression data choose reset deco and push ENTER. You'll be prompted to confirm the action. For the next dive the OSTC starts decompression calculation from new, without any data of former tissue load.

! Warning

Use **reboot** and **reboot deco** only, if you do not plan a repetitive dive within the next 48 hours.

Reset all

Resets all settings (not time and date) to factory defaults. You'll be prompted to confirm the action. Dives in the logbook and the dive counter will not be reset.

Desaturation and the no fly time will remain.

Reset logbook

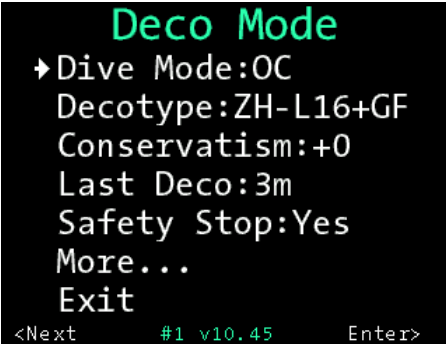
Deletes all data in the logbook. The counter starts again with zero. If you want your personal number of dives to be shown in the logbook, you have to set up (again) the number via logbook offset.

Reset battery

When replacing the battery you have to choose the battery type (OSTC plus). If you were wrong, you can correct your information in this menu (how to change the battery, page 30).

4.3. Deco setup

In deco setup you can configure the dive mode of your OSTC and select important settings for the decompression calculation.



```
Deco Mode
▶ Dive Mode:OC
Decotype:ZH-L16+GF
Conservatism:+0
Last Deco:3m
Safety Stop:Yes
More...
Exit
<Next #1 v10.45 Enter>
```

Menu overview »deco setup«.

4.3.1. Dive mode

You can switch between the dive modes for open circuit (OC, scuba diving) or apnea diving.

The current dive mode is shown permanently both in surface mode and dive mode. Setting range: OC, apnea Default: OC

4.3.2. Decotype

Toggles between decompression calculation using the Bühlmann ZH-L16 algorithm or the Bühlmann ZH-L16+Gf with gradient factors.

ZH-L16

The classical algorithm Bühlmann ZH-L16 calculates with maximum values (M-values) which should not be exceeded. As safety margin to the M-values (100 percent) this deco model uses **saturation factors**. The OSTC is preset to a value for saturation of

110 percent and a value for desaturation of 90 percent. Thereby there is a safety margin of 10 percent to the M-value.
 Default: Saturation: 110%,
 Desaturation: 90%

ZH-L16+GF

The more modern algorithm Bühlmann ZH-L16+GF with **gradient factors** calculates with deeper decostops and a much bigger safety margin to the M-value. So you have less micro bubbles in your tissues. The GF low controls the allowed saturation for the

deepest decostop, the GF high does it with the highest decostop. The OSTC is preset 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.
 Default: GF 30/85

We suggest using the algorithm ZH-L16+GF with gradient factors.

4.3.3. Conservatism

With levels of conservatism you can choose if your decompression shall be calculated more conservative (+2) or progressive (-2). The levels correspond to the following values:

Value	Description	Saturation factors (ZH-L16)	Gradient factors (ZH-L16+GF)
+2	very conservative	85 %/115 %	20/75
+1	conservative	88 %/112 %	30/80
0	normal	90 %/110 %	30/85
-1	progressive	92 %/108 %	30/90
-2	very progressive	95 %/105 %	50/95

4.3.4. Gradient factors

If you want to adjust the gradient factors (GF) by yourself, choose in the menu »Conservatism« the value GF. Then scroll down the menu (> MORE) until you get to »GF high« and »GF low«. Here you can adjust the gradient factors to your own needs.

In the deco model ZH-L16+GF the gradient factors (GF) regulate the safety margin to the maximum values of the Bühlmann model that should not be exceeded during deco.

The GF values are indicated like this: First the GF low, then the GF high is specified, for example GF 30/85

GF low

The GF low regulates the allowed saturation for the first deepest decostop. The smaller the value of the GF low, the deeper starts the first deco stop.

Setting range: 20– 95%

Default: 30%

GF high

The GF high regulates the allowed saturation for the last shallowest decostop. The smaller the value of the GF high, the longer is the last deco stop.

Setting range: 45 – 95%

Default: 85%

! Warning

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

4.3.5. Saturation factors

The classical Bühlmann model ZH-L16 does not use GF, but saturation factors to create a safety margin to the maximum values of the deco model. They can only be set via the conservatism levels.

4.3.6. Last deco

Setting for the depth of the last decompression stop. Choose here if the OSTC shall calculate its last stop at 3, 4, 5 or 6 meter. When you have heavy waves, a deeper last decostop can be better.

Setting range: 3 – 6 meters

Default: 3 meters

4.3.7. Safety stop

The safety stop can be switched on or off. After a dive within the no deco limit (NDL) the OSTC shows a safety stop of 3 minutes in 5 meter. It is displayed as a countdown split to the second. More settings on the safety stop can be done with the personal computer

Setting range: on/off

Default: on

4.3.8. Future TTS

The future TTS makes a deco forecast. You can set this value between 0 (disabled) or 5 minutes. In OC mode the future TTS shows the TTS (total time to surface) that you will have if you stay for xx minutes (the set value) on the current depth.

For example: »fTTS @5« shows the TTS that you will have in five minutes if you stay on the current depth.

The future TTS is displayed as soon as a future TTS with a decostop is available.

Setting range: 0 – 5 minutes
(0 = disabled)

Default: 5 minutes

4.3.9. ppO2 settings

Settings for maximum and minimum value of oxygen partial pressure (ppO2). This value has an impact on the MOD (maximum operating depth) during setup gases and using them.

The maximum threshold **Max** warns of a too high oxygen level. With **Max Deco** you can define a different value for the deco phase of a dive.

Setting range: 1,20 – 1,60 bar

Default: 1,40 bar (Max), 1,60 bar (Max Deco)

```
Deco Mode
➔ Future TTS:5'
  GF high:80%
  GF low:30%
  ppO2 Max:1.60bar
  ppO2 Deco:1.60bar
  Exit
<Next #1 v10.45 Enter>
```

For the decompression a different ppO2 value can be set than for the deep part of the dive.

4.4. OC Gas setup

Use gas setup to configure presets for up to three gases. You can switch between these presets when you change your gases while diving.

The presets are marked like this: **Air** for compressed air (21% oxygen) and **Nx** for Nitrox (e.g. a mix of Nitrox 31 is shown as Nx31). 100% oxygen is shown as **O2**.

```
Gas List
Gas1:*Air 0m
➔ Gas2: Nx50 21m
  Gas3: Air 0m
  Exit
<Next #1 v10.45 Enter>
```

The first gas is marked with an asterisk. Disabled gases are blue, but you can select them anyway during the dive.

4.4.1. Edit gas

Select a gas in the OC gas list and press ENTER to see details or to change values. For each gas you can set the type and the gas mix, for deco gases also the change depth.

```
Edit Gas
Gas2: Nx50 21m
MOD: 22m (1.60bar)
➔ Type: Deco
  Setup Mix
  Change depth
  Exit
<Next #1 v10.45 Enter>
```

For each gas the OSTC shows the maximum operating depth (MOD).

4.4.1.1. Select gas type

Choose for which purpose you want to use the gas, as first gas, travel gas or deco gas. You can scroll the gas type with ENTER.

First

The first gas that you use to start your dive. Only one gas can be marked as first. If there is only one gas active, it will be automatically first gas. Additionally the first gas is marked with a *. Each of the five gas can be marked as first gas.

Travel

Gases that you use for descending or as bottom gas.

Deco

Gases that you use for decompression.

Disabled

Gas is disabled and is not taken into account for the decompression prognosis. During the dive you can select them anyway, then the calculation starts from new.

Disabled gases are shown in blue letters.

Note

The first gas is used when starting the dive. All gases (even disabled ones) can be chosen underwater.

The OSTC always computes the tissue load and the decompression scheme using the selected gas. It takes all deco gases in account for the decompression phase.

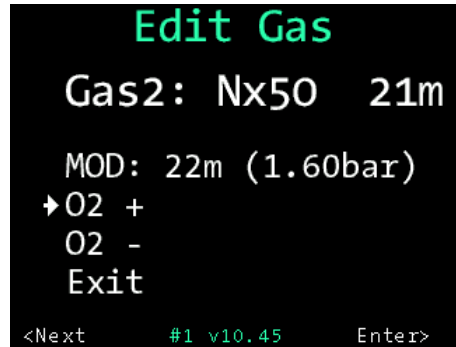
The change of deco gases with configured change depth will be advised underwater.

4.4.1.2. Setup mix

For every gas you can set the percentage of oxygen.

Select O2+ or O2- to change the percentage of oxygen. Repeatedly push ENTER until the required value is shown. For refe-

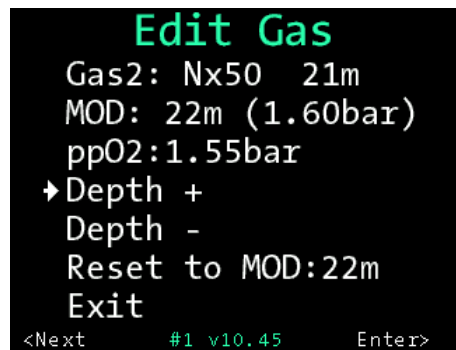
rence, the OSTC shows the calculated maximum operating depth (MOD) for your mix.



With + you can increase the values for oxygen, with - you can decrease them.

4.4.1.3. Change depth

To set the change depth for your deco gases, select »Depth+« or »Depth-«. The chosen change depth will be shown in the first line of the display. It 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 MOD depends on the set ppO2 value.



You can set the change depth freely or you can reset it to the MOD.

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

To change the gas during the dive, open the menu (left button MENU) and go to »Gas list«. The change of deco gases with configured change depth will be advised underwater.

More on page 26.

Examples

Dive with only one gas:

Configure one gas, for example gas 1 as first. Set up the mix using the submenu set-up mix. Disable the other two gases (Type: disabled).

Dive with one additional decompression gas:

Setup the first gas. Enable one other gas as deco and setup your gas mix. Disable the remaining gas.

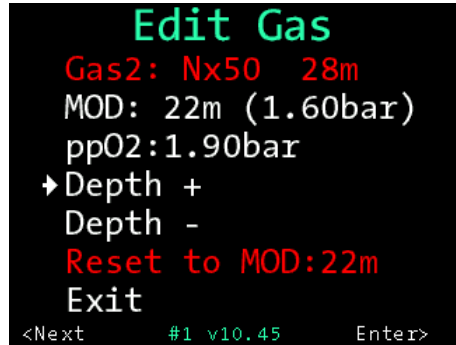
Dive with two decompression gases:

Setup another gas to deco and configure the second deco mix.

The current gas list is shown in surface mode and in dive mode in the menu (left button). You can easily see which gas fits to the current depth. Gases with a too high or too low ppO₂ are marked red.

Note

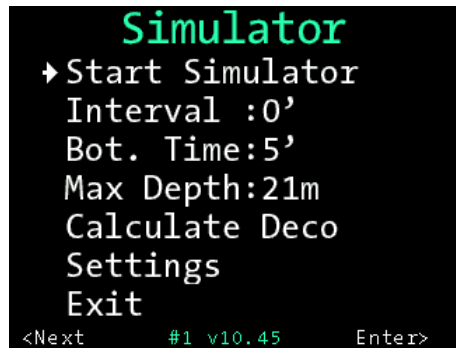
If you only dive with one gas and only switch from air to nitrox, you can store the two gases in your gaslist – now you can easily choose your actual gas with first.



Gas list in surface mode: The Nx 50 has a too high ppO₂ for the current depth.

4.6. Simulator

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



Menu overview »Simulator«.

4.6.1. Calculate a decoplan

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

Intervall

If you are planning a repetitive dive, set up the surface interval in minutes. It can be increased in steps of 10 minutes.

Setting range: 0 – 240 minutes

Default: 0 minutes

Bottom depth

Enter a value for the maximum depth. It can be increased in steps of 3 meters.

Setting range: 12 – 69 meters

Default: 21 meters

Bottom time

Enter a value for the bottom time (the time you want to stay on the maximum depth). It can be increased in steps of 2 minutes.

Setting range: 1 – 59 minutes

Default: 5 minutes

Settings

With »Settings« you can additionally enter your respiratory minute volume (in liter per minute) for the first gas/travel gas and the deco gas. Then the deco calculation will show your gas usage (in liter) for the planned dive.

Setting range: 5 – 50 l/min

Default: 20 l/min

Dive Plan: 15m | 2'
Int: 0' 12m | 1'
Time: 21' 9m | 4'
Depth: 36m 6m | 7'
3m | 17'

ZH-L16+GF
OC, 30%/80%
TTS: 36'
CNS: 0% → 7%

Dive plan for a dive with air for 21 minutes on a depth of 39 meters. Switch to the calculated gas needs with the right button ENTER.

When the calculation is finished, the display shows the decoplan with the planned decostops. Depth is displayed in meters, duration in minutes. The duration is additionally represented graphically.

To show the gas needs and further stops (if there are more than 8) press ENTER.

The deco calculator uses the current surface pressure for the calculation. In the simulator, the pressure is set to 1 bar. This can result in slight deviations in the deco calculation, also in comparison to other deco calculation programs.

4.6.2. Start simulator

Simulated dives can be maximum 90 minutes long and are not stored in your logbook. The simulation uses all set values in the OSTC and the current saturation (if available).

Simulated dives do not affect any values of the OSTC. Any saturation from real dives remains unchanged.

Select the »Bottom Depth« and select »Start Simulator« to start the simulation of the dive mode.

Change dive time and depth

During the simulation you can change the depth and the dive time. Press the left button repeatedly to display the menu items. Select the desired item with ENTER (right):

Menu: Open menu in dive mode

Quit?: Quit dive mode simulation. The simulation will stop after a short delay.

Sim: -1m: descend 1 meter

Sim: +1m: ascend 1 meter

Sim: +5>: longer the divetime for 5 minutes

All other functions are similar to the dive mode and are described there.

Note

The OSTC stays 90 minutes in the simulation mode until it switches to sleep mode. Stop the simulation mode manually to save energy.

5. Dive mode

5.1. Displays in dive mode

Permanent information

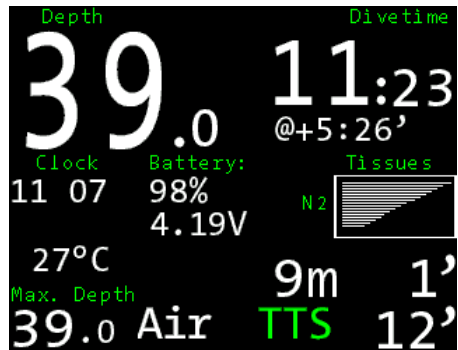
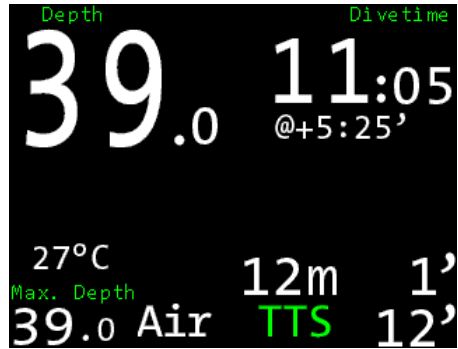
In dive mode the OSTC shows the following items permanently on the display:

- depth in meter or feet (also the maximum depth)
- divetime in minutes and seconds
- NDL (No Deco Limit) or TTS (Time To Surface including all decostops) and the next deco stop in minutes.
- currently used gas
- water temperature in °C or °F
- Future TTS (@+xx) (if activated, is only displayed as soon as a future deco obligation will occur).

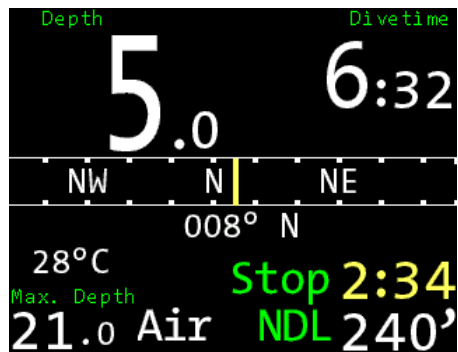
Selectable information

Selectable items can be shown in the custom view in the middle of the display. You can scroll through these items with the right button:

- Stopwatch with average depth and stopped depth
- Decoplan: Display of all decompression stops. If there are no decostops necessary, there will be displayed ---. If there are decostops, the next decostop is permanently shown on the main display.
- Time, battery status and tissue saturation
- compass
- ppO₂, EAD/MOD, CNS
- ppO₂, ceiling, GF info (current GF value)
- no information



The future TTS only appears when there is a deco forecast (top). Various additional information is displayed in the custom view in the middle.



If activated, the safety stop starts from 5 meters as a countdown of 3 minutes.

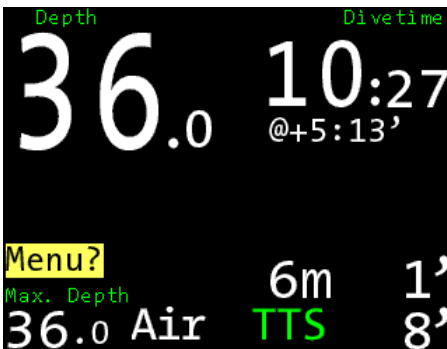
5.2. Menu in dive mode

In dive mode (OC) you can select your pre-set gases (gaslist), reset the calculation of your average depth (reset avr./stopwatch) and set a marker in your logbook.

To open the menu, push the left button. On the display appears »Menu?«. Push ENTER (right) to confirm. The pre-menu »Menu?« avoids that you push the button by accident. Confirm within five seconds or the OSTC returns to normal display.

Note

In the dive mode apnea there are no menu functions available.



Call the menu with the left button, open it with the right button.

5.2.1. Gas change (OC)

Open the menu and select »Gas list« to do a gas change. You can choose between the gas mixes that you have prepared in »Gas setup« in the surface mode. Select the gas. The selected gas then appears on the main screen.

If you forgot to configure a gas on the surface you can catch this up while diving. Go to »Gaslist« and then to »More« to configure it. Set your gas with O2+ and O2- and confirm with ENTER. The newly configured gas is used immediately for calculation.

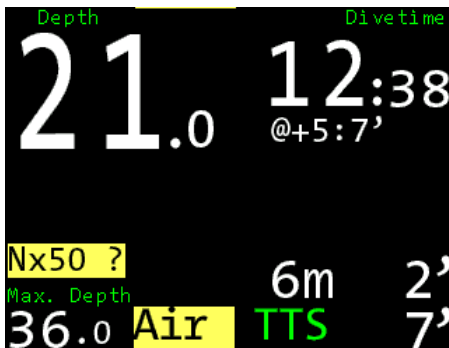
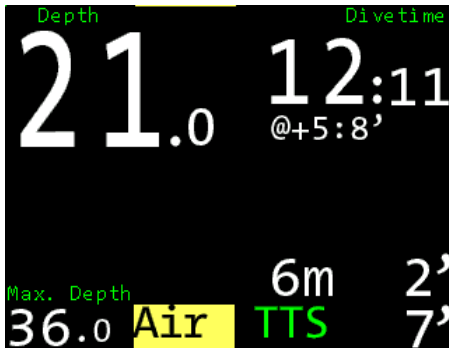


Menu in dive mode (top). If you go to »Gaslist« you see all the gases and can select one (below).

Better gas change

Once you have set the change depth of your deco gas, you can carry out a quick gas change without entering the menu. The OSTC automatically suggests the appropriate gas.

A gas turns yellow, when you get close to the configured change depth of the gas during your ascent. Then press the left button NEXT and the dive computer suggests you the better gas (e.g. Nx50?). So you see at once which gas you shall use. Just confirm with ENTER and the gas is active.



Better gas change: Close to the configured change depth, the current gas gets yellow and the dive computer suggests you a better gas.

Note

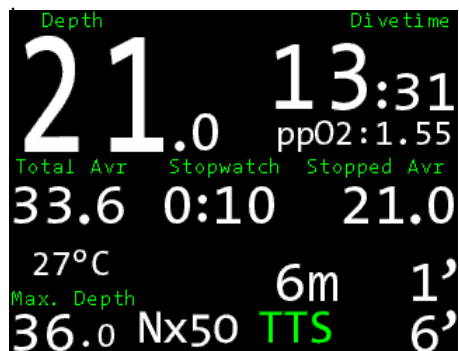
Gases in **red** have a too high or low ppO₂ to be used in the current depth (they can be selected anyway).

Gases in **blue** are disabled. They can be selected anyway, too, but they have not been part of the decompression calculation. If you select one of them, the calculation starts from new.

5.2.2. Stopwatch

In dive mode you can select the average depth and stopwatch in the custom view (right button). Total avr indicates the average depth since the start of the dive. Stopped avr indicates the average depth for a period of time that you choose.

The stopwatch starts with the beginning of the dive. While diving you can restart it in the menu function reset avr. The stopwatch starts from new and shows the average depth since the start of the stopwatch (stopped avr).



Stopwatch: »Total avr.« shows the average depth for the whole dive, »Stopped avr.« shows the average depth since the reset of the stopwatch.

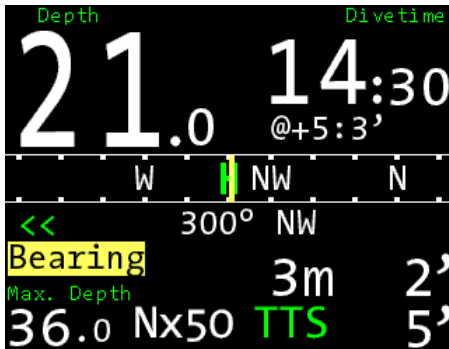
5.2.3. Set marker

If you select »Marker« there will be a small marker (M) in your logbook from that point.

5.2.4. Bearing

To make a bearing with the compass at first go to the compass view with the right button. Then push the left button twice until bearing is displayed. With the right button you confirm the compass course you want to use. It will be marked green. The opposite heading will be marked red.

You can also make a bearing in the surface mode, just before diving. Put the custom view to compass and push the left button. It appears Bearing. Push the button another time to store the actual bearing.



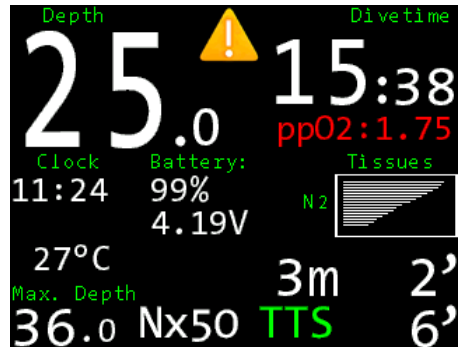
When »Bearing« is active, take your bearing and confirm with the right button. It will be marked green, the opposite heading will be marked red.

5.3. Warnings

Warnings appear in yellow and red on the display. Depending on your custom view the warnings appear in the custom view or in the upper part of the display (not double). If there are critical warnings, a warning sign is displayed additionally.

Warnings are shown in the dive mode for the following items (some warnings also appear in the surface mode):

- low battery level
- ppO₂ too high or too low
- CNS warning (danger of oxygen poisoning)
- missed decocstop (the missed decocstop is marked red)
- too fast ascent
- MOD exceeded



The ppO₂ warning appears either on the main screen (see example) or in the custom view.

Rate of ascent

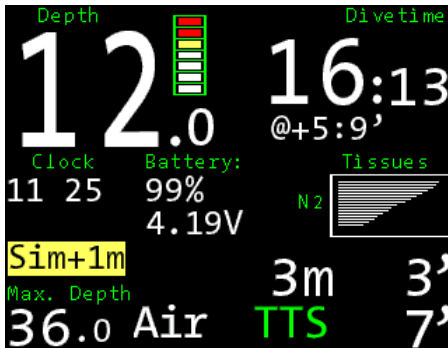
The rate of ascent is displayed when it is higher than six meters per minute (e.g. +7/min). When the rate of ascent is higher than 10 m/min it is displayed in red as warning.

The rate of descent is displayed when it is higher than 6 m/min (e.g. -15m/min).

Settings for the display of the rate of ascent can be done in display settings (page 15).

After diving the OSTC 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. The countdown can be adjusted. Upon

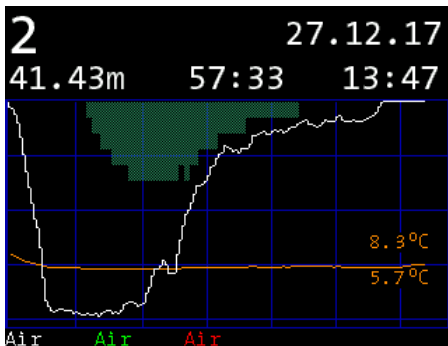
a depth of 1 meter, the dive can also be stopped manually (page 15: dive timeout)



If you see the ascent rate in numbers or as graph depends on the display settings.

6. Logbook

The OSTC records data during every dive. It can be retrieved from the logbook. The OSTC stores data of up to 255 dives with a total duration of 500 to 1000 hours. The exact number of records depends on the overall size of data. If the memory is full, existing records will be overwritten, starting with the eldest.



Depth profile in logbook. Switch to more information with the right button.

Note

If you want to save your recorded dive data, you can connect the OSTC via Bluetooth to a personal computer or smartphone and read out the data (page 31).

Logbook entries are sorted in chronological order, starting with the most recent entry. Every entry shows position index, date, maximum depth and dive time.

To see details of a dive, press ENTER to select it. The first detailed view appears with a depth profile and an overview of the most important data (depth, dive time, date, clock, temperature, deco, gases used).

With the right button ENTER you can call up further information such as charging status, deco settings, average depth and gas list.

Use the left button to exit the view.

Markers are shown with a yellow M.

Note

Via Settings > Display Settings > Logbook Offset you can put in your own number of dives. It will be shown instead of the numbers of dives which are stored in the dive computer (page 15).

7. Maintenance

7.1. Housing

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

7.2. Bungee

The OSTC is delivered with bungees. The bungee wristband can be set to your arm diameter individually. To tighten the bungee, make a reef knot or a simple double knot above the circular cavity (tighten knot very strong). You can also use two bungees and fix them at the ends with figure eight knots. Cut the remaining bungee after about one centimeter and use a lighter to melt the small remains of nylon.

The bungees are hand washable and can be replaced if necessary. To mount the bungee on the backplate, we recommend you to wrap the ends with tape. On our facebook page you find a detailed video instruction about how to install the bungee.

7.3. Charging the battery

The OSTC has a high-capacity rechargeable battery. In eco mode it offers up to 60 hours of runtime (OSTC 2, OSTC 2TR, OSTC cR). It takes up to seven hours to recharge it completely. The battery of the OSTC plus offers 20 hours of runtime, the recharging takes two hours.

Recharging the OSTC 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 backside on it. For your orientation: On the backside of the dive computer is a round cavity where the pad should be placed.

As soon as it is charging, the pad is illuminated **permanently in green or is flashing slowly in green**. Start the OSTC and watch the battery indicator on the display. When the battery sign is permanently marked yellow the dive computer is charging optimally.

To protect the battery, the pad already stops charging at a small warming and flashes in red. Just leave the dive computer on the charger. The charging will be continued automatically.



To recharge your dive computer it has to be placed onto the charging pad (rose).

Note

When the battery is totally empty, the desaturation time and no fly time are still remaining. But check time and date after restarting the dive computer.

7.4. Changing the battery

The rechargeable battery of the OSTC 2, OSTC 2 TR and OSTC cR is sealed and can only be removed by heinrichs weikamp. The rechargeable battery of the OSTC plus can be changed by the user and also replaced by a normal 1.5V AA battery. Nevertheless we advice you to use the rechargeable battery. OSTC sport runs on an AA battery of any kind.

Insert a new battery in your OSTC plus

Open the battery compartment with a screw driver and remove the old battery. Insert a new battery of the size AA with the plus pole ahead.

Check the battery compartment o-ring. From time to time apply a very small amount of o-ring grease to it.

Close the battery cap until it is inserted in the housing. Do not close it with force.

It is also possible to use a quality brand 1.5V battery, but this is not recommended due to its short runtime. We recommend the use of the supplied rechargeable batteries with 3.6V and 0.8Ah.

The use of a 1.2V NiMH battery is not recommended.

In the dive computer OSTC sport charging is not possible (this is about the model OSTC sport, not about the firmware hwOS sport). Nevertheless, you can still use rechargeable

lithium batteries with 3.6V and 0.8Ah.

After replacing the battery the menu **»New battery«** appears on the display. Select if you have inserted the old battery again, a new 1.5V battery or a 3.6V lithium ion battery. With this information the OSTC can calculate the remaining battery capacity.

! Warning !

The use of non-rechargeable 3.6V batteries in the OSTC plus is not allowed and these batteries can not be selected in the menu!

Overview menu **»New battery«**:

Keep old

T0: New 1,5V AA (disposable battery)

T1: New 3,6V Saft (disposable battery)

T2: 3,6V chargeable (rechargeable battery)

T3/T4: OSTC 2 or TR (permanently installed battery in the OSTC 2, OSTC 2 TR and OSTC cR)

Not all battery options are shown for all hardware versions of the OSTC.

To use a **rechargeable battery** in the OSTC plus (like the delivered one), select **»T2: 3,6V chargeable«**. The **»OSTC 2 or TR «** refers only to the built-in rechargeable battery of the OSTC 2, OSTC 2 TR and OSTC cR.

T0 deactivates the charging function of the OSTC plus. With this setting, the OSTC plus cannot be charged. If the charger flashes red immediately, check whether the wrong battery type has been selected. In order to recharge the dive computer OSTC plus, you have to select T2.

When you insert and select a rechargeable battery (3.6V chargeable), the OSTC initially displays 0% battery capacity even when the battery is full. This is normal, because the battery display needs one cycle of charging to calibrate itself (which, of course, is much faster if the battery is already charged). Put

your OSTC plus on the charging pad until it indicates 100% charging capacity. After this operation, the battery status is displayed correctly.

Note

If you put in a wrong value for your battery, you can change it in the menu »Reset« with »Reset battery«

We recommend the use of a USB power supply with at least 1.5A at 5V.

7.5. Spare parts

Spare parts like bungees, backplates, rechargeable batteries, AA batteries (Saft LS14500 3.6V), caps for the battery compartment, Bluetooth adapter and screen protectors are available in the online shop of heinrichs weikamp or at your dealer.

www.heinrichsweikamp.com

8. Software and updates

You can easily connect the OSTC to your PC, notebook or smartphone via Bluetooth to install software or read out your dives.

8.1. Bluetooth mode

Activate the Bluetooth Mode in the main menu with ENTER. On the display appears »Starting ... done« and the Bluetooth is active. After activating you have four minutes to connect the OSTC with your personal computer or smartphone.

When there is no connection, the Bluetooth menu terminates automatically. You can also stop it with the right button ENTER.

When connecting your OSTC to a personal computer the first time, you need to »pair« your dive computer with the device. This process depends on the operation system of the computer. In Windows: Click the Bluetooth symbol in the system tray and select the option »add device«. You don't need a PIN code.

When the connecting is done, the PC creates a virtual COM port. Via this the PC software communicates with the OSTC. You do not need any special drivers, you only have to select the correct COM port (outgoing port, SPP).

All OSTC did get the latest firmware before shipping using the normal Bluetooth access and the software tools below. All this is done here in the factory on standard MAC or Windows 10 PCs.

7.1. Firmware updates

The firmware hwOS is in a constant process of improvement. To make the best of your

OSTC, use the latest stable firmware that is available at the heinrichs weikamp website: www.heinrichsweikamp.com

There are several ways to update the firmware:

OSTC Companion

Use the OSTC Companion, which you can download from our homepage. Download and unzip the firmware. Connect your OSTC to your computer and select the correct COM port and model in the OSTC Companion. Click on »Update Firmware«. With the Companion you can also set date and time and enter a personal text.

Subsurface

It is also possible to install the firmware with the free logbook software Subsurface. If your OSTC is connected to Subsurface, the program will automatically ask you if you want to update (if an update is available).

Apps (free of charge)

Using the apps HWOS Config (Android) or OSTConf (iOS) is the easiest way to install the firmware on your dive computer. Turn on the Bluetooth in the OSTC and connect it to your smartphone. Open the app, select the device and connect it. Now you can update the firmware, set the date and time, set the personal text and reset the buttons to default values.

7.2. Software for the OSTC

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

On our website you'll find a list of all OSTC supporting programs and applications. Go to Service > Software:

www.heinrichsweikamp.com

Note

We recommend you to upgrade the firmware regularly – at least once a year. Updates for the OSTC are free of charge, of course.

9. Technical data

Display	High resolution IPS LCD monitor with ambient light sensor, field of view: 170°, Resolution: 320 x 240 pixel
Connections	Bluetooth, (OSTC cR: S8 connector)
Sensor	Combined depth/temperature sensor 3D compass (fully tilt-compensated)
Power supply	Integrated Lithium Battery (OSTC plus: also 1.5V AA battery), OSTC sport: AA battery of any kind
Operating elements	Two piezo buttons, OSTC sport: Push two buttons
Housing	Milled from a single block of alloy (OSTC plus and OSTC sport), ABS-PC (OSTC 2, OSTC 2 TR, OSTC cR), scratch resistant borosilicate-glass panel
Dimensions	66 mm x 65 mm x 20 mm (OSTCplus) 76 mm x 78 mm x 30 mm (OSTC 2 and OSTC 2 TR) 80 mm x 68 mm x 34 mm (OSTC cR) 69 mm x 66 mm x 21 mm (OSTC sport)
Weight	150 gr. (OSTC plus), 170gr. (OSTC 2 and OSTC 2 TR), 240 gr. (OSTC cR), 180g (OSTC sport)
Max. Depth	120 meters

10. Disposal

According to the European WEEE directive, electrical and electronic devices must not be disposed with consumer waste. It's 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.





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