HALCYON™ SYMBIOS

NORMAL
26.1   15:00
1.11   1.10   1.12
1.10   1.10   1.11
SP12
0   CC   98

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1 Introduction

Thank you for purchasing the SYMBIOS HUD dive computer.The SYMBIOS HUD is an advanced dive computer built from the toughest materials on the market and highly sophisticated electronic components. The Hybrid Transflective Color Screen display is extremely easy to read, even in bright sunlight.
The SYMBIOS HUD can be used as a dive computer for air, NITROX, TRIMIX, and closed circuit rebreather diving.
The SYMBIOS HUD also features an innovative wireless interface. This interface allows data reception from multiple sources.

Currently, the device can receive wireless data from:

— SYMBIOS Tank Pod

— SYMBIOS pO_2 Transmitter

— SYMBIOS pO_2 Transmitter, P-Port version

— SYMBIOS CM eCCR

— SYMBIOS GPS Buoy

— DPV equipped with a Halcyon SYMBIOS-compatible wireless transmitter

— External compass

— SYMBIOS wireless OEM interface

The SYMBIOS HUD, together with a compatible SYMBIOS Tank Pod, is classified as Personal Protective Equipment under the EU Regulation 2016/425 and protects against risks listed under PPE Risk Category III (a): substances and mixtures which are hazardous to health.
Based on EU PPE Regulation 2016/425 Annex I, the SYMBIOS HUD protects the user/diver from the risk of drowning (Category III (i)) by displaying vital tank pressure information which allows for appropriate life-saving action.

1.1 Safety Considerations

Before using the SYMBIOS HUD, please read this manual in its entirety. Be aware that diving has many inherent risks. A dive computer considerably increases diving safety, but it does not eliminate the remaining risk of serious injury or death caused by decompression sickness, oxygen toxicity, or other inherent risks of scuba diving.

You should not use this SYMBIOS HUD if you are not aware of or if you do not accept those risks.

In this manual, the following three precautionary messages are used: WARNING, CAUTION, and NOTICE symbols provide users with necessary information about potential hazards and proper procedures.

⚠ WARNING

WARNING statements describe potentially hazardous situations which, if not avoided, could result in serious injury or even death.

⚠ CAUTION

CAUTION indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.

NOTICE

NOTICE statements are used to provide important information regarding installation, operation, maintenance, performance, general important tips, or instructions for a procedure or situation that, if not performed properly, might cause damage to the device but is unrelated to physical injury.

1.2 Warnings

⚠ **WARNING**

Before using the SYMBIOS HUD, read the manual in its entirety to familiarize yourself with all of the functions of the device.

⚠ **WARNING**

Do not use SYMBIOS HUD if it shows any signs of damage or malfunction. Contact HALCYON or an authorized repair center.

⚠ **WARNING**

Before using SYMBIOS HUD, you must have successfully completed a course in scuba diving and you must have knowledge about the potential risks and hazards of scuba diving.

⚠ **WARNING**

Even if you follow dive tables or a dive computer, the risk from decompression sickness (DSC) or oxygen toxicity cannot be totally eliminated. DCS and oxygen toxicity risk profiles depend on physiological conditions which can vary from day to day. The SYMBIOS HUD cannot account for these variations.

⚠ **WARNING**

We strongly advise that you stay within the exposure limits provided by the instrument to minimize the risk of DCS.

⚠ **WARNING**

No decompression algorithm can provide a guaranteed safe decompression. It is your responsibility to be trained, dive safely, carry backup tables and instrumentation, and compare any decompression schedules generated with the SYMBIOS HUD against established diving tables.

⚠ **WARNING**

Do not ignore warning signs and indicators on the SYMBIOS HUD. This may result in serious injuries or death.

⚠ **WARNING**

You should never share the SYMBIOS HUD with other divers. Always use the same dive computer for repetitive dives. The SYMBIOS HUD features a built-in memory function that keeps track of your diving history. Substituting the SYMBIOS HUD between a series of repetitive dives may result in incorrect decompression calculations.

⚠ **WARNING**

Do not fly or travel to high altitudes while the NO FLY indication remains active. Flying while the SYMBIOS HUD displays NO FLY can result in serious injury or death.

⚠ **WARNING**

If you omit one or more decompression stops, a symbol will indicate the current ceiling to which you should descend. If you continue to ignore these warnings, there is no additional ERROR or LOCKOUT. Do not ignore these warnings. Decompression stops are your responsibility and must be performed for your safety.

⚠ **WARNING**

Always dive with backup instruments: depth gauges, pressure gauges, dive watches, or backup dive computers. While planning a dive with the SYMBIOS HUD, it is recommended that you have access to decompression tables.

⚠ **WARNING**

Contact your instructor or authorized dealer before diving with the SYMBIOS HUD if you do not fully understand how to use it or if you have any questions.

⚠ **WARNING**

Do not exceed the limits of your training/certification level.

⚠ **WARNING**

Always carry and frequently check a backup pO_2 monitoring device.

⚠ WARNING

Always carry and frequently check a backup dive computer.

⚠ WARNING

Before diving, consult a physician regarding your fitness to dive.

⚠ WARNING

In recreational diving, do not dive with a pO_2 > 1.4 bar/ATA. Diving with a high pO_2 may lead to O_2 intoxication.
Never dive with a pO_2 > 1.6 bar/ATA. Diving with a pO_2 >1.6 bar/ATA will lead to O_2 intoxication.

⚠ WARNING

NITROX diving requires proper training. Do not dive with NITROX without a NITROX certification.

⚠ WARNING

TRIMIX diving requires proper training. Do not dive with TRIMIX without a TRIMIX certification.

⚠ WARNING

Do not use breathing gases other than air, including hypoxic TRIMIX breathing gases, with an O_2 fraction of less than 20% unless you have been properly trained in using those gases or unless you have a TRIMIX certification.

⚠ WARNING

Do not violate the ceiling depth during decompression. In order to avoid doing so by accident, stay slightly below the ceiling depth. Staying deeper than the required ceiling depth will increase the total time to surface.

1.3 Installation

The SYMBIOS HUD is mounted directly onto a diving mask.

Mask front view

A support is clamped onto the frame of a diving mask.

Mask rear view

The SYMBIOS HUD support allows for simple adjustment by containing two ball joints that accommodate divers' unique eye positioning.

The SYMBIOS HUD is held by a clamp. Use the attachment point of the SYMBIOS HUD to secure the SYMBIOS HUD onto the diving mask.

NOTICE

Washers with different thicknesses or a combination of those are used to adjust the clamp to the size of the frame. 1 mm, 2 mm, and 4 mm washers are included in the package.

NOTICE

The support cannot be installed on all diving masks. If you are not sure if the support fits on your mask, please contact your local dive shop.

⚠ CAUTION

Always use a secondary attachment method to secure your SYMBIOS HUD to your diving mask (e.g., nylon fishing line).

For a visual demonstration, watch our tutorial on mounting the **HUD to your H-View Mask**:
https://youtu.be/oEMPK-jYrnQ

For installation guidance on mounting the HUD to other compatible masks, please refer to the dedicated HUD Mount Installation Guide:
https://media.halcyon.net/folder/Symbios-HUD-Mount-Installation-Guide-v1.pdf

1.4 Operation

Powering On
When the SYMBIOS HUD is not in use, it is in standby mode. In standby mode, the display remains off to minimize power consumption.

Press and release the button A or B to activate the computer.

The SYMBIOS HUD will automatically power off and switch into standby mode if it is not operated while on the surface or has not received wireless data from a CCR for more than two minutes.

Two-Button Operation

Two tactile push buttons are used to operate the SYMBIOS HUD with short and long presses of the buttons. Use a short press to switch between screens, navigate in a menu, or increment or decrement user settings. Use a long press to confirm selections, enter the main menu, or activate a user-selectable custom function. Within the menu, the long press functions are indicated in boxes on top and bottom of the screen. Long button presses have different functions.
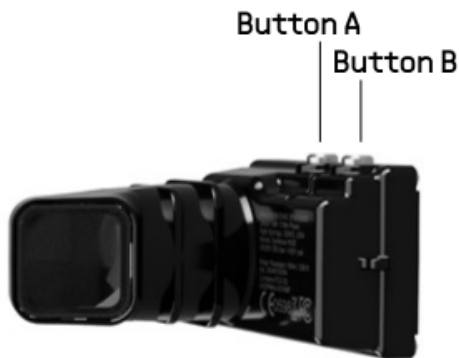
Button A
Button B

During a dive, the buttons function as follows:

_ Short press button A to toggle between different information screens.

_ Long press button A to access the menu.

_ Short press button B to toggle the custom field.

_ Long press button B to perform the custom function set in MENU → SYSTEM → CUSTOM FUNC.

_ Long press both buttons at the same time to acknowledge and reset various warnings and alarms.

Custom Field

The information presented in the custom field is dependent on the dive mode. You can select some parameters to be shown in the custom field (left lower field), including:

Tank pressure of selected gas
Tank pressure T1 – T4 (only available if a tank pod is paired to T1 – T4, respectively)
ASC – Ascent speed in m/ft per min
BAT – Remaining battery charge in % or volts (Depending on the operation mode, this can include the battery state of the Symbios CCR and the Greenflash™ digital oxygen sensor)
CNS – Central Nervous System O_2 Toxicity in %
AVG – Average depth
COMP – Compass heading in °
TEMP – Temperature
GF Now – Current Gradient Factor
GF Surf – Gradient Factor if the diver instantaneously surfaces
Ceiling – The depth ceiling that the diver can ascend to without depth rounding
Gas Density – The density of the breathing gas
CCR FO_2 – Fraction of oxygen currently in the CCR breathing loop
CCR Dil PO_2 – Partial pressure of oxygen in the diluent at the current depth
CCR SP – CCR setpoint for oxygen
SCRUBBER – Usable time remaining of the CO_2 absorbent material in a CCR
TTS+5 – The projected Time to Surface if the diver remains at the same depth for another five minutes
TRIM – Diver's trim in ° (requires a Symbios Tank Pod)
Lamp RRT – Not currently available
Lamp SOC – Not currently available

NF – No Fly time (Only displayed on surface after a dive and while there is no fly time remaining)

Custom Function

Press and hold button B to perform the predefined custom function. You can preset this custom function by navigating to MENU → SYSTEM → CUSTOM FUNC. The following functions are available:
Off (No Function)
Start/Reset the stopwatch
Select best gas (this is calculated according to the gas table and the maximum pO_2)
Save waypoint (only available when a wireless GPS signal is received)
BO/SP Low/SP Hi: When in CCR FSP mode, the HUD switches between Bailout (OC), low setpoint, and high setpoint.

1.5 Surface Mode
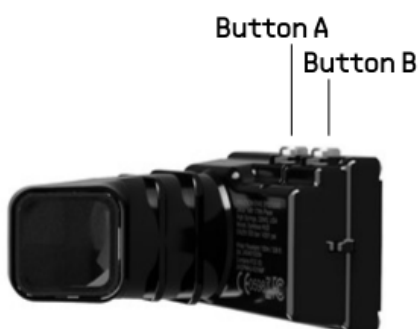
On the surface, the SYMBIOS HUD will typically remain in standby mode to minimize power consumption. In standby mode, a fully charged battery can last as long as long as six months. However, you should plan to supply a maintenance charge with long-term storage.

Press and release either button A or B to activate the device.

The pictured display (OC mode) shows:
_ The compass (top)
_ The maximum depth and time of the last dive (under compass)
_ Information about the gas used on the last dive (under depth)
_ The Surface Interval (SI) (under time)
_ The pressure of the breathing gas (bottom left)
_ The ascent rate indicator (bottom right)

1.6 Care and Maintenance

The SYMBIOS HUD is built from high-quality, seawater-resistant materials. The SYMBIOS HUD is designed to withstand diving in harsh conditions. However, divers should still protect the SYMBIOS HUD from mechanical shock, excessive temperatures, chemicals, and mechanical tampering.

Long term maintenance and/or repair actions are not required.

NOTICE

After diving, rinse the SYMBIOS HUD in freshwater to avoid corrosion.

NOTICE

Before connecting the SYMBIOS HUD to a USB cable, ensure that the USB connector on the SYMBIOS HUD is clean and dry. Failure to do so may lead to corrosion of the contacts.

⚠ CAUTION

Protect the SYMBIOS HUD from mechanical shocks and during transportation.

⚠ CAUTION

Do not try to open or repair the SYMBIOS HUD. The SYMBIOS HUD does not contain any user-serviceable parts. Service may only be performed by HALCYON or by an authorized service center.

⚠ CAUTION

Inspect the SYMBIOS HUD for mechanical damage and cracks before and after each dive to ensure proper working condition.

NOTICE

Failure to observe the above precautions voids the warranty along with any product-related liability of Halcyon.

Charging and USB Connection

The SYMBIOS HUD features a USB port for charging.
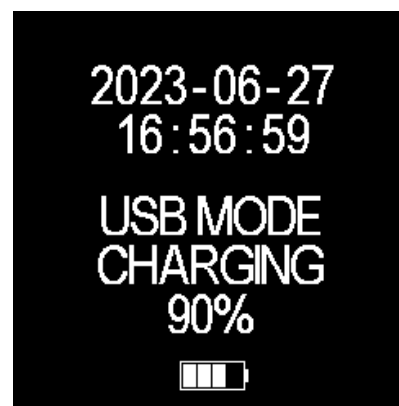
The SYMBIOS HUD will display a charging screen when it is plugged in.
You may charge the SYMBIOS HUD using any USB-compatible power source.
When connected to a PC, the SYMBIOS HUD will also appear as a removable drive on the PC and can be accessed like a USB drive.

⚠ WARNING

If the battery indicator flashes red during a dive, the battery level is low and the dive computer may soon switch off or perform a reset. After a reset, dive data, depth, dive time, and decompression obligations will be incorrect.

⚠ WARNING

Do not dive when the SYMBIOS HUD battery indicator is red. The dive computer might run out of battery during the dive. In such a case, the SYMBIOS HUD may give incorrect depth readings, incorrect decompression data, or may shut off completely. In case of a red battery indicator, recharge the SYMBIOS HUD before the next dive.

⚠ WARNING

Never fully discharge the SYMBIOS HUD; full discharge may damage the lithium ion rechargeable battery.

⚠ WARNING

If the battery is completely discharged, the dive computer may reset and lose all decompression information. If a reset

occurs between repetitive dives, be aware that the SYMBIOS HUD loses decompression data and compartment inert gas pressure data from previous dives; thus, decompression readings and calculations for any following dives should be considered incorrect.

NOTICE

After a dive, before connecting the cable, rinse the SYMBIOS HUD in freshwater. Make sure that the USB connector is clean and dry before connecting the USB cable.

NOTICE

Do not disassemble or remodel any cables or connectors. Use only the original USB cable supplied with the SYMBIOS HUD. Check compatibility before use.

NOTICE

Use only a clean and dry USB cable. Clean and dry the connector surfaces of the cable before use.

NOTICE

If the SYMBIOS HUD is completely discharged, charge the device for at least three hours before use.

NOTICE

Before using the SYMBIOS HUD for the first time, charge the device for at least three hours.

NOTICE

Charge the SYMBIOS HUD with a USB power source with a nominal output of 5V and at least 500 mA of electrical current.

2 Settings
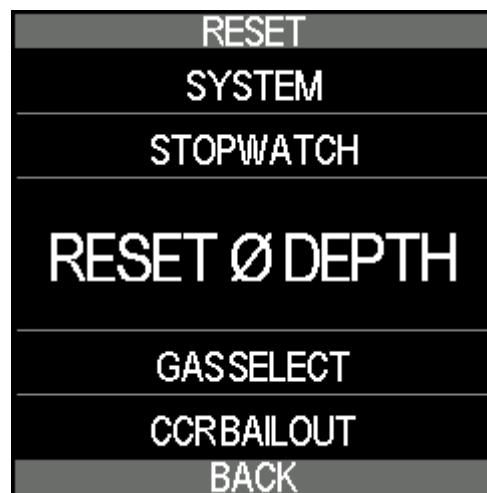
The SYMBIOS HUD has an intuitive menu which allows you to change settings quickly.

NOTICE

Press and hold button A to access the menu.

NOTICE

Press and release button A or B to navigate in a menu or to increment or decrement a setting.

NOTICE

Within the menu, the long press functions of both buttons are indicated in boxes on the top and bottom of the menu.
Press and hold button A to perform the function indicated on top of the menu.
Press and hold button B to perform the function indicated on the bottom of the menu.

2.1 Menu

See **Appendix: Menu Tree** at the end of this document.

2.2 Select a Gas

You can select your diving gas using the SELECT GAS menu item. Alternatively, you

can switch to the prompted gas during the dive by pressing and holding button B. For this option to be available, you must select BEST GAS as the custom function of button B.

Any of the gases activated in the gas table can be selected.

RESET
SYSTEM
STOPWATCH
RESET Ø DEPTH
GAS SELECT
CCR BAILOUT
BACK
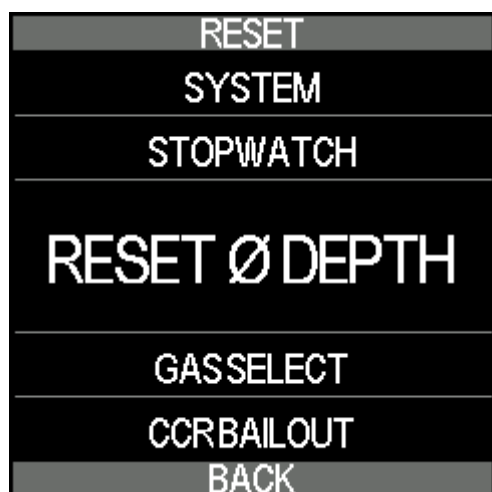
To select a gas from one of the main screens:

Long press button A to enter the menu.

Short press button B to navigate to menu item SELECT GAS.

Long press button A to open the SELECT GAS MENU.

SELECT
OC1: NX21
OC2: NX32
OC3: NX36
MOD 34m
OC4: NX50
OC5: TX18/45
BACK

Within the SELECT GAS menu:

Short press either button to navigate between five open circuit gas and three diluent gas settings.

Long press button A to select one gas setting.

Long press button B to go back to the menu.

Divers can only select gases that are activated. Activate a gas during the dive via the GAS TABLE menu item.

2.3 Edit a Gas Setting from the Gas Table

To edit the contents of the gases in the gas table or to activate and deactivate gases, navigate to the GAS TABLE menu found in SETTINGS.

MODIFY
DIL2: NX50 22m
DIL3: NX21 66m
☐ OC1: NX21
MOD 66m
OC2: NX32 40m
OC3: TX18/45 79m
BACK

Short press either button to navigate to the gas entry you want to modify. Long press button A to modify a gas entry.

Long press button B to return to the menu.
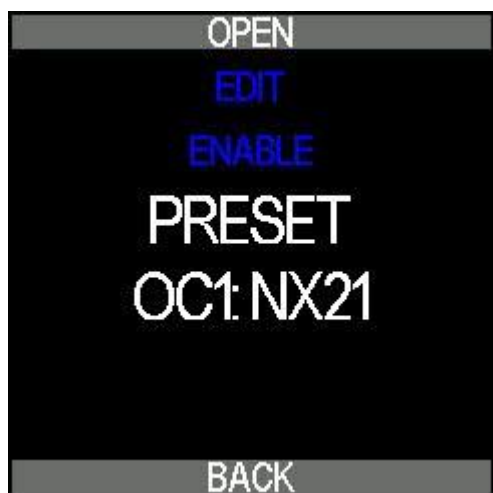
Short press either button to navigate to the EDIT, ENABLE/DISABLE, or PRESET options in the MODIFY menu.
Long press button A to select the highlighted function in the center of the screen. Long press button B to return to the menu.

Editing Gas Content

To edit the contents of a gas in the gas table, short press either button to increment or decrement a digit. Long press button A to set the digit and move to the next digit. Long press button B to delete the gas entry.

Enabling/Disabling a Gas

Enable, disable, or select a gas from a pre-programmed gas library in the EDIT GAS menu.
Only enabled gases can be selected in the SELECT GAS menu.

Presets

The PRESET menu includes the following pre-programmed gases:

- TX10/85
- TX10/50
- TX15/55
- TX18/45
- NX21/35
- NX21(AIR)
- NX32
- NX35
- NX50
- NX80
- NX99(O_2)

⚠️ **WARNING**

Do not change gas settings unless you are trained in NITROX, TRIMIX, or mixed gas diving.

2.4 Pairing

Wireless Interface

The SYMBIOS HUD features an innovative wireless receiver capable of receiving data from multiple sources. Those include:

- SYMBIOS Tank Pod
- SYMBIOS pO_2 Transmitter
- SYMBIOS pO_2 Transmitter, P-Port version
- SYMBIOS CM ECCR
- SYMBIOS GPS Buoy
- SYMBIOS wireless OEM interface

To pair wireless devices, navigate to Menu → SETTINGS → PAIRING.

Halcyon App Pairing

Pair your HUD with the Halcyon App:

1. Open the Halcyon App on your phone.
2. Start your Halcyon computer menu and enter System/System Info/BT Code.
3. Write down the code.
4. Go to the Symbios icon at the bottom of your Halcyon app and click scan.
5. Locate your device and select it.
6. Enter the BT Code listed in the System menu of the Symbios unit.

⚠ WARNING

Always confirm the correct device is selected before pairing. Incorrect pairing may interfere with data transmission and system monitoring.

NOTICE

Leaving the Halcyon App active while paired to a device will maintain a live connection and may deplete the device battery. Close the app or pairing window, or disconnect from the device when pairing is not required.

Pairing a SYMBIOS Tank Pod

Pairing a SYMBIOS Tank Pod with Gas in the Gas Table

Pair the SYMBIOS Tank Pod in MENU → SETTINGS → PAIRING → TANK POD.

1. Install the SYMBIOS Tank Pod on a first stage. The SYMBIOS Tank Pod is suitable for tank pressures up to 300 bar/4,350 psi.
2. Attach the first stage to the tank and open the tank valve.
3. Wait approximately 15 seconds for the transmitter to switch on. Ensure that the SYMBIOS HUD and the SYMBIOS Tank Pod are in close proximity (ideally <40 cm/16 in).
5. Navigate to MENU → SETTINGS → PAIRING → TANK POD → TO GAS.
6. Short press either button to navigate to and select the appropriate gas entry for the SYMBIOS Tank Pod.
7. Long press button A to select a gas entry.
8. Long press button A to start pairing.

If the pairing process is successful, the SYMBIOS HUD will display the tank pressure.

If you have any trouble pairing please verify you are not trying to pair a given transmitter to multiple gases or transmitter numbers. This is the most common cause of pairing problems. Unpair from all other gases/transmitters and try the pairing process again.

To unpair the SYMBIOS Tank Pod, navigate to MENU → SETTINGS → PAIRING → TANK POD → TO GAS. Short press either button to select the gas you want to unpair. Long press button B to unpair the SYMBIOS Tank Pod.

Pairing a SYMBIOS Tank Pod Independently from the Gas Table

You may pair a SYMBIOS Tank Pod independently of the gas table. A SYMBIOS Tank Pod can be paired with either T1, T2, T3, or T4.

To pair a SYMBIOS Tank Pod :

1. Install the SYMBIOS Tank Pod on a first stage. The SYMBIOS Tank Pod is suitable for tank pressures up to 300 bar/4,350 psi.

2. Attach the first stage to the tank and open the tank valve.
3. Wait approximately 15 seconds for the transmitter to switch on. Ensure that the SYMBIOS HUD and the SYMBIOS Tank Pod are in close proximity (ideally <40 cm/16 in).
4. Navigate to MENU → SETTINGS → PAIRING → TANK POD → TO NUMBER.
5. Short press either button to navigate to T1, T2, T3, or T4.
6. Long press button A to select one of the menu entries.
7. Long press button A to begin pairing.

Pairing the Trim Sensor

The SYMBIOS Tank Pod is equipped with a high-resolution, 3-axis accelerometer which assesses diver trim.

After pairing a SYMBIOS Tank Pod, pair the trim sensor to either a gas entry in the gas table or an entry from the number table (i.e., T1 – T4).

1. Ensure that the SYMBIOS Tank Pod is pressurized and transmitting tank pressure data.
2. Navigate to MENU → SETTINGS → PAIRING → TRIM SENSOR.
3. Press and hold the top button to begin pairing.

The diver trim is indicated in the custom information field.

Calibrating the Trim Sensor

After pairing a trim sensor or changing the orientation of the SYMBIOS Tank Pod with respect to the tank, calibrate the trim sensor.

First, perform a horizontal calibration:

1. Pressurize the SYMBIOS Tank Pod and place the dive tank in a horizontal position.
2. Navigate to MENU → SETTINGS → TRIM SENSOR → HORIZONTAL.
3. Long press button A to perform the horizontal calibration.

In the second calibration step, perform a vertical calibration:

1. Orient the tank vertically with the valve up.
2. Navigate to MENU → SETTINGS → TRIM SENSOR → VERTICAL.
3. Long press button A to perform the vertical calibration.

NOTICE

A SYMBIOS Tank Pod can only be paired with one entry in the menu. Before pairing a SYMBIOS Tank Pod with a new gas entry, unpair it from the SYMBIOS HUD.

⚠ WARNING

Even when using a SYMBIOS Tank Pod, always use a backup tank pressure gauge. Check the backup tank pressure gauge at regular intervals.

NOTICE

Complete a calibration each time the orientation of the SYMBIOS Tank Pod changes with respect to the tank.

Otherwise, without a re-calibration, the tilt reading may be incorrect.

Pairing a SYMBIOS CM eCCR

To pair the SYMBIOS HUD with a SYMBIOS CM ECCR:

1. Navigate to MENU → SETTINGS → PAIRING → CCR INTERFACE.
2. Turn on the SYMBIOS CM eCCR.
3. Press and hold the top button to start pairing.

NOTICE

You must calibrate the O_2 sensors after pairing the SYMBIOS CM eCCR Transmitter. To complete calibration, follow the instructions on the user manual of the SYMBIOS CM eCCR

NOTICE

If a wireless transmitter is too far from the SYMBIOS HUD and data cannot be received, the values will be grayed out on the display.

⚠ WARNING

Always use backup instruments for your SYMBIOS pO_2 Transmitter or SYMBIOS Tank Pod.

2.5 Compass Calibration

To perform a compass calibration, go to MENU → SYSTEM → CAL COMPASS.

The compass calibration takes approximately two minutes. Within these two minutes, move the SYMBIOS HUD in a figure 8 in front of you.

After the calibration, check the compass heading. If the compass heading is incorrect, recalibrate the HUD. If the compass heading is still incorrect, there may be magnetic disturbances at your location. Go to a different location (outside a building and distant from electric power lines) and recalibrate the HUD.

3 Diving

You can use the SYMBIOS HUD for recreational or technical diving: air, NITROX, or TRIMIX open circuit diving and closed circuit rebreather diving with a constant pO_2 setpoint.
You can also use the SYMBIOS HUD as a communication hub for the SYMBIOS Cm eCCR. The SYMBIOS HUD offers live pO_2 sensor monitoring and rebreather operating status information.
The SYMBIOS HUD also offers support for sidemount diving (paired with SYMBIOS TANK Pods) and can operate in Bottom Timer mode (where no decompression calculations are performed).

Dive mode is automatically activated as soon as you reach a depth >1 m/3 ft. After surfacing and after a two-minute timeout, surface mode is activated. You can adjust the time interval to enter surface mode.

During diving,
_ Short press button A to switch between different screens.
_ The lower left field on the screen is the custom field. Choose the default item shown in this field in MENU → SYSTEM → CF DEFAULT.
_ Short press button B to switch between different items in the user-selectable custom field.
After 60 seconds, the item in the custom field will automatically switch back to the preset field in MENU → SYSTEM → CF DEFAULT unless the user has selected the No Default option in the CF Default menu.

_ Long press button A to enter the menu.
_ Long press button B to perform the custom function (MENU → SYSTEM → CUSTOM FUNC).
In open circuit diving mode or closed circuit bailout mode, the default setting for this function is to confirm a suggested gas switch.
In CCR FSP mode, the default setting for this function is to cycle the HUD through Bailout, Closed Circuit Setpoint Low, and Closed Circuit Setpoint High.
In bottom timer mode, the default setting for this function is to start/reset the stopwatch.

The SYMBIOS HUD features different screens. Short press button A to switch between screens.

This is the first screen. The current depth is 22.8 m, dive time is seven minutes, remaining tank pressure is 138 bar, and remaining no-decompression limit is 13 minutes. The diver is breathing air (NX21). The compass heading is indicated at the top of the screen.

Short press button A to switch between different screens.
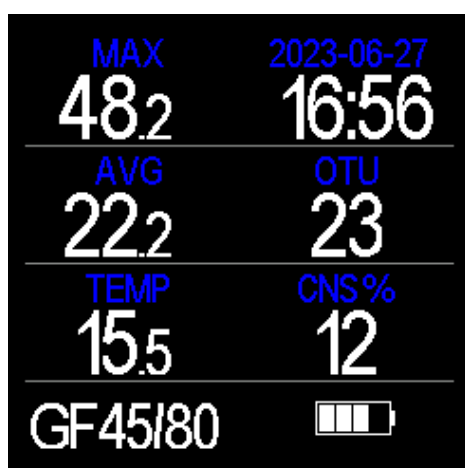
The second screen displays auxiliary data. You can enable additional screens (to, for instance, show wireless information or a detailed deco schedule) in the menu.
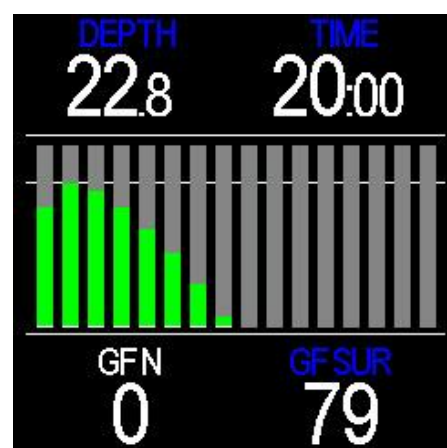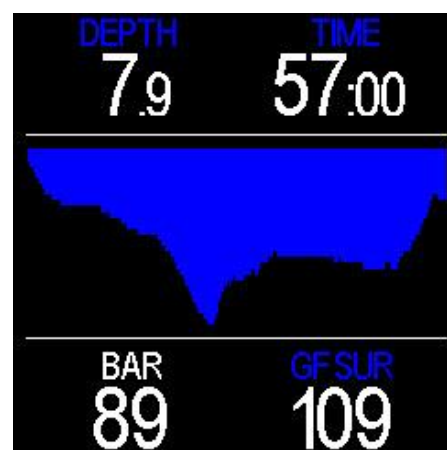
The real time depth profile screen (top) and the tissue compartments gas loading screen (bottom) are two additional screen options available.

⚠ WARNING

The risk of decompression sickness (DSC) or oxygen toxicity for any dive profile cannot be totally eliminated—even if you follow dive tables or a dive computer. DCS and oxygen toxicity risk profiles also depend on physiological conditions which can vary from day to day.
The SYMBIOS HUD cannot account for these variations.

⚠ WARNING

We strongly advise that you stay within the exposure limits provided by the instrument to minimize the risk of DCS. However, even if you stay within recreational limits and the no-decompression limits given by this dive computer, DCS symptoms may still occur.

> **⚠ WARNING**
>
> Before diving, consult a physician regarding your fitness to dive.

> **⚠ WARNING**
>
> In recreational diving, do not dive with a pO_2 > 1.4 bar/ATA. Diving with a high pO_2 may lead to O_2 intoxication.
> Never dive with a pO_2 > 1.6 bar. Diving with a pO_2 >1.6 bar/ATA will lead to O_2 intoxication.

> **⚠ WARNING**
>
> Do not dive deeper than what your current diving qualification allows.

> **⚠ WARNING**
>
> NITROX diving requires proper training. Do not dive with NITROX without a NITROX certification.

> **⚠ WARNING**
>
> Besides the decompression stops, there are no additional mandatory safety stops or error messages displayed when you violate the decompression ceiling and time or the recommended ascent rate.

> **⚠ WARNING**
>
> Do not violate the ceiling depth during your decompression. In order to avoid doing so by accident, you should stay slightly below the ceiling depth. Staying deeper than the required ceiling depth will increase your total time to surface

> **⚠ WARNING**
>
> Do not use breathing gases other than air, unless you are certified in NITROX or TRIMIX diving.

> **⚠ WARNING**
>
> Do not use breathing gases other than air, in particular hypoxic TRIMIX breathing gases with a O_2 fraction of less than 20%, unless you have a TRIMIX certification.

3.1 Preparations Before the Dive

Switch on the SYMBIOS HUD before diving and complete all necessary settings changes on the surface. Check the SYMBIOS HUD for damage before diving. Before entering the water, check:

— Battery level
— Conservatism (gradient factors) settings
— Gas settings
— Time and date
— Units (imperial or metric)

Switch on the SYMBIOS HUD before you enter the water.

> **⚠ WARNING**
>
> Before each dive, check the battery power and recharge the battery if necessary. Recharge the battery when the computer has not been used for an extended time. Low temperatures can affect battery performance. Pay special attention to the charge level of the battery during cold-water dives.

> **⚠ WARNING**
>
> Before each dive, verify that the SYMBIOS HUD settings are correct.

> **⚠ WARNING**
>
> When using breathing gases other than air, analyze the breathing gas before the dive. Verify that the fractions in the gas table are correctly set.

> **⚠ WARNING**
>
> Set the SYMBIOS HUD to your preferred measurement units (imperial or metric).

3.2 Decompression Model

The SYMBIOS HUD calculates no-decompression times and decompression stops, depth, and duration using a mathematical decompression model which estimates the inert gas uptake and elimination during diving. The SYMBIOS HUD uses the Bühlmann ZH-L16C dataset. The model uses 16 hypothetical compartments for nitrogen and 16 for helium to estimate the inert gas loading of the body's tissues during a dive.

Gradient factor (GF) allows divers to customize the algorithm. Using the GF concept, divers can reduce the maximum allowable compartment gas loading to a percentage of the maximum permissible loading according to the original Bühlmann ZH-L16 model. In other words, a GF below 100 results in shorter no-decompression times and longer decompression schedules and is more conservative than the original algorithm.

There are two GFs. GF High limits the maximum allowable compartment inert gas loading. GF Low is only relevant for decompression diving. It reduces the maximum allowable compartment gas loading at depth. A low GF Low setting results in deeper decompression stops.

The SYMBIOS HUD features a very precise pressure sensor which can also be used as an altimeter. This allows the SYMBIOS HUD to adapt automatically to the reduced atmospheric pressure in altitude diving.

NOTICE

A lower GF High results in shorter No-Decompression Limits.

NOTICE

Diving with a lower GF High reduces the risk of decompression sickness.

NOTICE

GF Low is only relevant when completing dives requiring mandatory decompression stops. A GF Low setting lower than a GF high setting results in deeper stops.

⚠ WARNING

Do not change GF settings unless you have proper training in decompression theory, the m-value concept, and gradient factors.

3.3 Time To Surface (TTS) Calculation

The SYMBIOS HUD calculates the Time To Surface (TTS) value based on parameters that affect the decompression calculations of the dive.
These parameters include:

— Inert gas loading at the beginning of the dive

— Dive profile (depth and bottom time)

— Gas used

— Partial pressure of oxygen when in closed-circuit dive modes

— The Gradient Factors selected by the user

— Ascent rate (the SYMBIOS HUD uses an ascent rate of 9 m/29 ft per minute to calculate the TTS)

During the dive, the SYMBIOS HUD assumes that you will use all the gases marked as active on the gas table to calculate the TTS. If you lose access to any of the gases during the dive, remove the affected gas from the list of active gases in the gas table to ensure an accurate TTS calculation.

3.4 Training Mode

Training mode allows you to create a simulated decompression plan while diving. This allows divers the opportunity to practice decompression stop diving in a real environment while still remaining within the NDL limit.

To enable the training mode, go to MENU → SYSTEM → TRAINING. Once enabled, a menu will be available while diving under the following conditions:

_ You are within the No-Decompression Limit

_ Depth is shallower than 30 m/100 ft

To create a simulated decompression plan, long press button A to enter the menu and select Training. Choose one of the six simulated dive profiles, and the computer will generate a simulated decompression profile based on your selection and current tissue loading.

3.5 Dive Modes

The SYMBIOS HUD offers different dive modes which can be selected in menu → SETTINGS → DIVE MODE.

You can choose between the following modes:

_ OC – Open Circuit Mode, suitable for air, NITROX, and mixed gas diving

_ CCR – Closed Circuit Rebreather Mode with pO$_2$ sensor readout

_ CCR FIX SP – Closed Circuit Rebreather Mode with fixed pO$_2$ setpoints

_ BOTTOM TIMER – Bottom timer mode; no decompression calculations are carried out

_ SIDEMOUNT – Sidemount diving mode for diving with two separate tanks

NOTICE

In Bottom Timer mode, the dive computer is not performing any decompression calculations or compartment saturation updates.

After using the dive computer in Bottom Timer mode, decompression calculations on repeat dives would be inaccurate. Therefore, after diving in Bottom Timer mode, you cannot change to a different dive mode within 24 hours.

3.6 Open Circuit Diving

Set the SYMBIOS HUD to open circuit diving mode in menu → SETTINGS → DIVE MODE → OC.

Diving with Air (NX21)
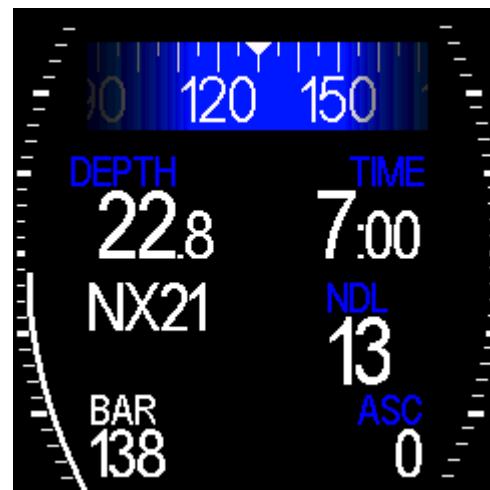
This is the main screen during a dive with air (breathing gas NX21). The current depth is 22.8 m and the dive time is seven minutes. The remaining no-decompression limit is 13 minutes. The remaining tank pressure is 138 bar. The bar graph on the left side visualizes the tank pressure. The range of the bar graph is 0 to 300 bar. The bar graph on the right side displays the ascent speed (range 0 to 18 m/0 to 59 ft per min).
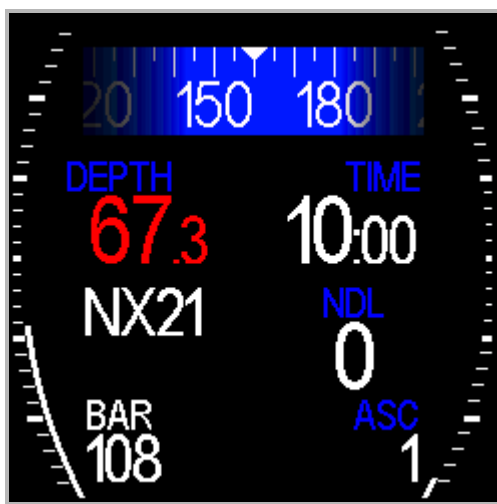
If the pO$_2$ of the breathing gas exceeds 1.6 bar/ATA or the maximum allowable pO$_2$ set by the diver, the depth indicator will blink white and red. Set the maximum pO$_2$ for the bottom gas in menu → SETTINGS → OC PO$_2$ BOTT.

The remaining no-decompression limit is 0 minutes, and the remaining tank pressure is 108 bar.

The tank pressure is 45 bar and the reading is blinking red and white. If the tank pressure falls below 50 bar, the pressure value will blink red and white. The safety stop timer is also displayed.

The SYMBIOS HUD features a resettable stopwatch. You can activate it with a long press of button B (if the custom function is set to stopwatch) or from the main menu.

Decompression Diving

You may exceed the no-decompression limit during your dive. In this case, the SYMBIOS HUD will also display the decompression stop depth and the time to surface. The decompression stop depth is 6 m, and the estimated time to surface is five minutes. The current ascent rate is 10 m/min (bar on the right side, scale from 0 to 18 m/0 to 59 ft per min maximum).

If you violate the current decompression stop depth, the current decompression stop depth will blink white and red.

Safety Stop Indicator

At the end of the dive, when there are no further decompression obligations, the SYMBIOS HUD proposes a three-minute safety stop at a depth between 3 and 5 m/10 to 16 ft. The safety stop timer counts from 3 minutes to 0, as long as you are at a depth between 3 and 5 meters. If you descend again to 10 m/30 ft depth or more, the safety stop counter will be reset to 3 minutes. The safety stop indicator can be enabled/disabled in menu → SYSTEM → SAFETY STOP.

Auxiliary Screen
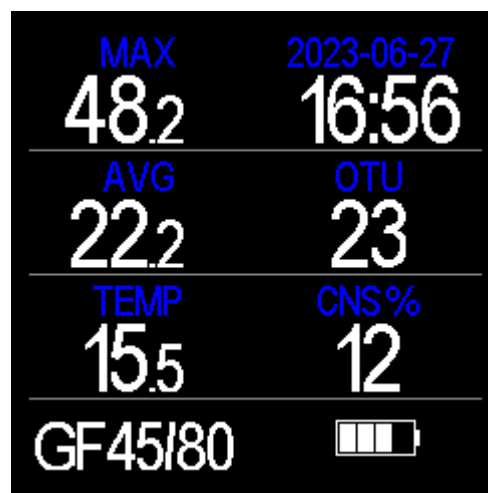
Short press button A to toggle screens. The auxiliary screens provide additional information including maximum depth, current time and date, average depth, OTU, CNS%, and the current temperature. The gradient factor settings and the battery charge status are both displayed at the bottom of the screen.

Diving with NITROX

The SYMBIOS HUD indicates your breathing gas. The current breathing gas is NITROX NX32 containing 32% O_2 and 68% N_2. The remaining tank pressure is 138 bar.

Diving with TRIMIX

The current breathing gas is set to TRIMIX 18/45 containing 18% O_2, 45% He, and 37% N_2.

Gas Switches

To accelerate decompression, you can use different gas mixes. One gas frequently used for decompression is NITROX 50 (NX50). Before the dive, set the gas table according to the gases you plan to use during the dive (menu → GAS TABLE). The SYMBIOS HUD will automatically calculate the best gas for the current depth based on the max pO_2 selected by you. If the currently selected gas differs from the best, a popup field will prompt you to switch gases. The gas currently selected is TRIMIX TX18/45. Based on the active gases stored in the gas table, the SYMBIOS HUD proposes NX50 as the best gas.

After performing the gas switch, select the correct breathing gas on the SYMBIOS HUD. There are two possible ways to select the best gas:

— Select NX50 in the gas table.

— Long press button B to select the best gas. This, however, requires that the custom function for Press and Hold button A is set to BEST GAS (menu → SETTINGS → CUSTOM → BEST GAS)

Deco Screen

Activate an optional DECO screen in menu → SYSTEM → DECO SCRN.
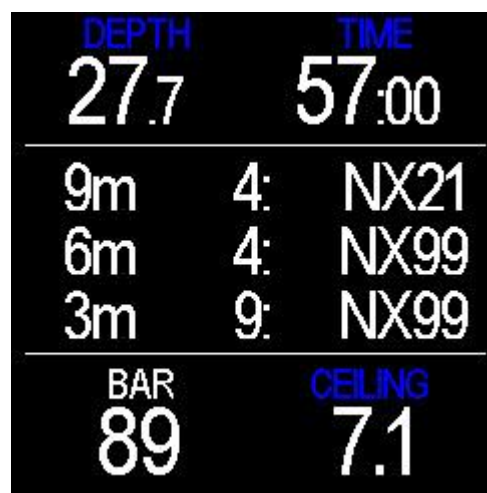
The deco screen shows:

— The current depth and dive time (top)

— The next three deco stops and the best gas available for the stop depth (middle)

— Custom field selected information (bottom left)

— Ceiling depth (bottom right)

Ceiling is the unrounded minimum depth that you can ascend to while still respecting the selected Gradient Factors.

Tissues Loading Screen

Activate an optional tissues loading screen in menu → SYSTEM → GF CHART.
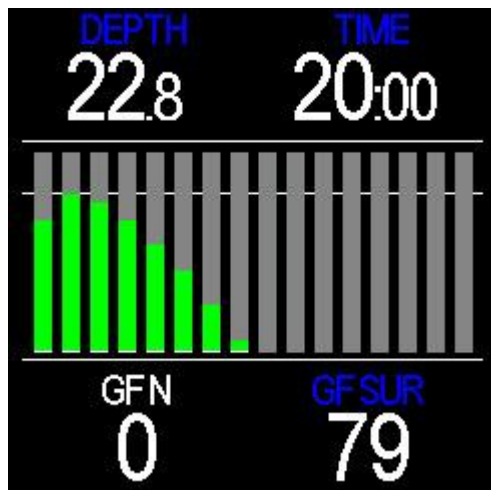
In the tissues loading screen, you can monitor the gas loading of the 16 tissue compartments of the decompression model in real time. The fastest tissue compartment of the model is represented in the far left of the screen while the slowest tissue compartment is on the far right of the screen. If the loading of the tissues has not exceeded the Gradient Factor High set by you (all the tissues are green in color). The line at the top of the screen represents the GF High limit. The GF surface value is displayed on the lower right side.

As you remain at depth, some of the tissue compartments have exceeded the Gradient Factor High that you set. The tissue compartments that have exceeded the limit are represented in red. The line in the

middle of the screen represents the GF High limit.
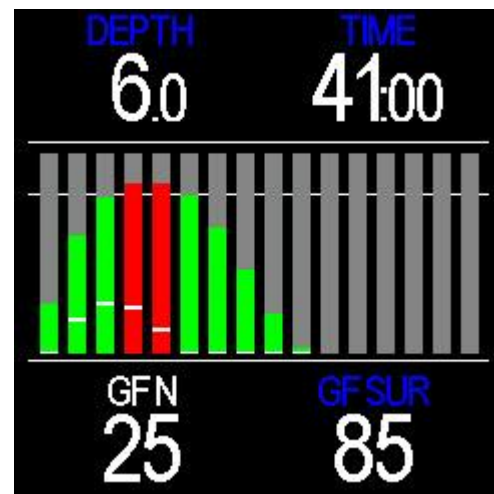
During the ascent and the required decompression stop, the tissue compartments are off-gassing. Given enough time, some of the tissue compartments will fall below the selected Gradient Factor High (represented in green) while other tissue compartments will require more time to off-gas (represented in red). The line near the top of the screen represents the GH High limit. The short white line within each tissue compartment bar represents the GF NOW value.

After the Dive

The SYMBIOS HUD will switch to surface mode after surfacing and a timeout of 2 minutes, unless you have set a longer time in the settings menu or in the Halcyon app.
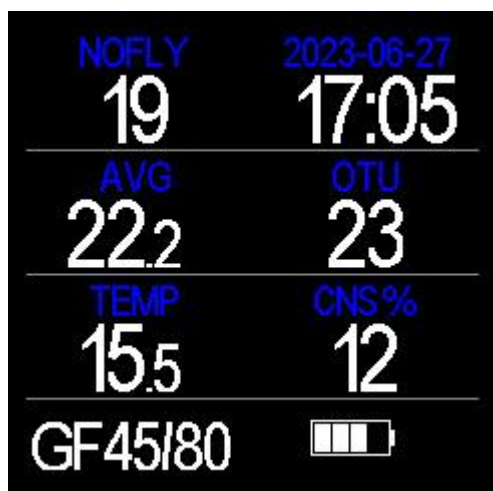
On the surface, the auxiliary screen displays additional data including the NO FLY timer and the current time and date.
The second and third rows display data from the last dive including average depth, OTU, minimum water temperature, and the current CNS% loading.

The bottom row displays the current Gradient Factor setting and the remaining battery capacity.
The NO FLY timer is also displayed on the custom information field on the main screen.

If you have violated a decompression stop depth ceiling and/or decompression obligations during the dive, the SYMBIOS HUD displays a DECO warning at the end of the dive.

If you have enabled a safety stop (default setting), the maximum depth of the dive was deeper than 10 m/30 ft, and the safety stop was not finished, the SYMBIOS HUD displays a STOP warning.

3.7 Closed Circuit Diving

Preparation

NOTICE

To use the SYMBIOS HUD for closed-circuit diving, first set the SYMBIOS HUD to closed-circuit mode in menu → DIVE SETTINGS → DIVE MODE → CCR.

Next, pair the SYMBIOS HUD with a wireless SYMBIOS CM eCCR interface. Various interfaces are available.

Set the diluent gas in menu → SETTINGS → GAS TABLE → DIL 1-3

Pair a tank pressure transmitter if you wish to have a tank pressure readout of the diluent tank.

O_2 Sensor Calibration
CCR O_2 sensors must be calibrated before diving.

Please consult your SYMBIOS CM eCCR user manual for specific instructions regarding O_2 sensor calibration.

Diving

This is a typical example of the main screen during a CCR dive with air as diluent (NX21). The HUD indicates the pO_2 of all the sensors, the current diving mode (CC), and the diluent used. The right bar graph indicates the tank pressure of the O_2 tank (98 bar). The left bar graph indicates the diluent pressure.

If the no-decompression limit is exceeded, the HUD indicates the decompression stop depth (in this example, 3 meters) and the estimated time to surface (5 minutes in CC mode).

If a pO_2 sensor reads a value above 1.6 bar/ATA, the value will blink white and red.

If a pO_2 sensor reads a value below 0.3 bar/ATA pO_2, the value will blink red and blue.

If a pO_2 sensor is showing incorrect values, it can be excluded from the deco calculations. Sensors can be

enabled/disabled from deco calculations in menu → SETTINGS → CCR SETTINGS → PO2 SENSORS.

Bailout

If a pO_2 sensor displays values that are too low or too high, take immediate action—for example, bail out.

There are multiple ways to switch the SYMBIOS HUD to bailout mode:

— Menu→CCR BAILOUT

— In certain rebreathers, the SYMBIOS HUD is automatically switched to BAILOUT mode when the rebreather is equipped with a BOV with a sensor: for instance, the SYMBIOS CM eCCR.

In this example, the SYMBIOS HUD is switched to BAILOUT which is indicated with BO at the bottom of the screen.

If the SYMBIOS HUD is set to BAILOUT mode, the computer will propose the best breathing gas (similar to open circuit diving mode).
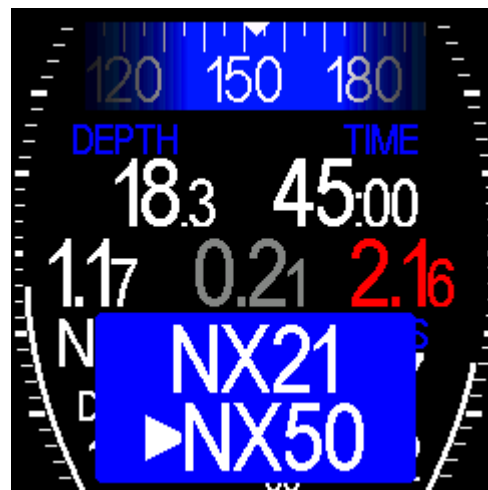
In this example, the current gas is set to NX21. The SYMBIOS HUD proposes that you switch to NX50.

After performing a gas switch, select the correct breathing gas. There are two possible ways to select the best gas:

— Select the proposed gas in menu → GAS TABLE.

— Long press button B to select the best gas. This, however, requires that the custom function for "Press and hold B button" is set to BEST GAS (menu → SYSTEM → CUSTOM FUNC → BEST GAS). For more advanced functions of the SYMBIOS HUD while diving with a SYMBIOS CM eCCR, please consult your SYMBIOS CM ECCR user manual.

NOTICE

After switching to bailout mode and the SYMBIOS HUD proposes a better breathing gas, select the best gas on the SYMBIOS HUD after performing the gas switch.

There are two possible ways to select the best gas:

— Select the proposed gas in menu → GAS TABLE.

— Long press button B to select the best gas. This, however, requires that the custom function for "press and hold button

B" is set to BEST GAS (menu → SYSTEM → CUSTOM FUNC → BEST GAS).

NOTICE

Some wireless transmitters will not start transmitting data until the pO_2 within the loop exceeds at least approximately 0.4-0.5 bar/ATA.

NOTICE

A CCR sensor calibration will only be successful when the analog sensors can output at least 38mV @ 1 bar/ATA pO_2.

⚠ WARNING

If a pO_2 sensor is reading a pO_2 value below 0.3 bar/ATA, the value will blink white and blue. Take immediate action; for instance, bail out.

⚠ WARNING

If a pO_2 sensor is reading a pO_2 value above 1.6 bar/ATA, the value will blink white and red. Take immediate action; for instance, bail out.

⚠ WARNING

If the values are displayed in grey, this means that the SYMBIOS HUD is not receiving pO_2 data from a wireless transmitter. Read your backup display and act immediately.

⚠ WARNING

Do not dive with a rebreather without proper training and certification.

3.8 Closed Circuit Diving with Fixed Setpoint

The CCR FIX SP mode can be used for closed circuit diving with a fixed pO_2 setpoint. This is the preferred mode when the SYMBIOS HUD is not paired with a CCR.

In this mode, you can pair the dive computer with tank transmitters for O_2 as well as diluent.

NOTICE

The setpoints can be selected in menu → CCR SETPOINT.

NOTICE

Switch between CCR and Bailout in menu → CCR Bailout.

This is an example of the screen during closed circuit diving with fixed setpoint. The left bar graph indicates the tank pressure of diluent (171 bar), and the right bar graph indicates the tank pressure of the O_2 tank (98 bar). Tank pod pressure transmitters are required to indicate the pressure of both oxygen and diluent gases.

If the no-decompression limit is exceeded, the computer indicates the decompression

stop depth (in this example, 3 meters) and the estimated time to surface (5 minutes) in CC mode.

The closed-circuit time to surface estimate is based on the current pO$_2$ setting. Bailout time to surface estimation is based on the enabled gases in the gas table.

Example of a screen during open circuit bailout

Long press button B to cycle between CC and BO mode, Low Setpoint, and High Setpoint.

3.9 Bottom Timer

To use the SYMBIOS HUD as a bottom timer, first set the SYMBIOS HUD to bottom timer mode in menu → SETTINGS → BOTTOM TIMER.
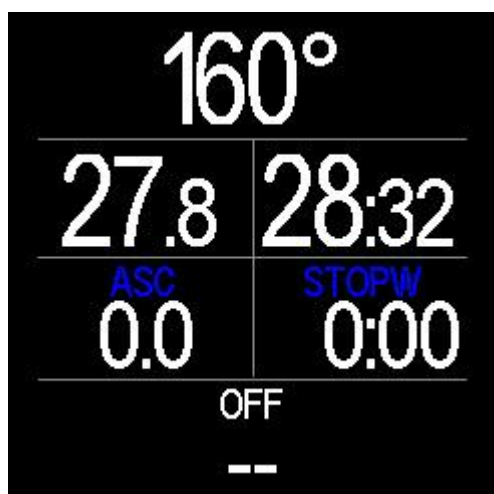
This is an example of the bottom timer screen. The top field indicates the compass heading. The second row indicates depth and dive time.
The right field in the third row shows the stopwatch.

The left field in the second row can be toggled between different values.

— Short press button B to toggle the lower left field between:

- — Current time and date
- — CNS% (when a tank pod is paired to a gas in the gas table)
- — pO$_2$ (when a tank pod is paired to a gas in the gas table)
- — Maximum depth
- — Average depth
- — Tank pressure of a transmitter paired to gas in the gas table
- — Ascent rate indicator
- — Battery level

— Long press the lower button to start/reset the stopwatch

A heading can be selected in menu → HEADING. If you select a heading, arrows next to the heading indicate toward the selected heading.
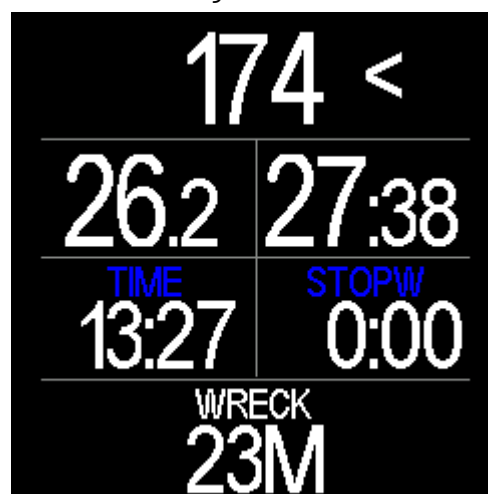
In bottom timer mode, the SYMBIOS HUD does not perform decompression calculations.

3.10 Sidemount Diving

The sidemount diving mode is used for diving with more than one sidemount tank. For sidemount diving with just one tank, open circuit diving mode is the preferred mode.

The left tank is the first gas entry in the gas table. The right tank is the second gas entry in the gas table.
The left tank transmitter must be paired with the first entry in the gas table. The right tank transmitter needs to be paired with the second entry in the gas table.

This sample screen shows a depth of 24 meters and 18 minutes of dive time. The remaining no-decompression limit is 5 minutes. In this example, the remaining tank pressure of the left tank is 137 bar, and the remaining tank pressure of the right tank is 123 bar. Both pressure values are also displayed via the left and right bar graph.

This sample screen shows a depth of 36.7 meters and 23 minutes of dive time. The current time to surface is 7 minutes, and the next deco stop is at 6 meters.
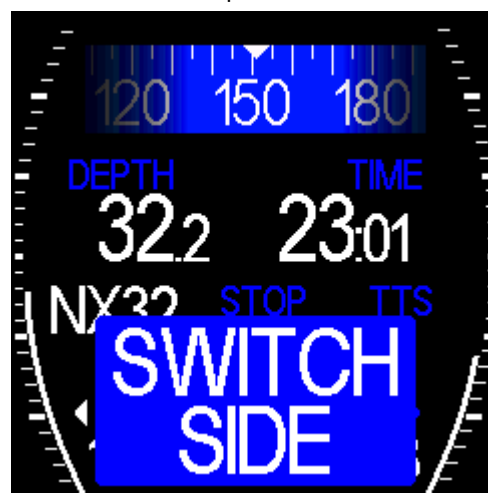
If the difference of the tank pressure between the two sidemount tanks is greater than 30 bar, you will be notified with a popup window.

A popup message will notify you of a pressure difference greater than 30 bar between the two sidemount tanks.
This function is only available, however, when the fraction of the two gases is the same and no decompression gas is carried.

3.11 Navigation

You can select and/or edit a target heading in menu → HEADING. You can set a compass declination in menu → SYSTEM → COMP DECLINATION.

In this example, the selected target heading is 127° and the current heading is 120°. A right-pointing arrow indicates that the target heading is right from the current heading.

Two arrows indicate that the current heading is equal to the target heading.

On this screen, the compass is represented with a moving scale. The 127° target heading is marked with a yellow line. The current heading is marked with a small triangle.

NOTICE

Before diving, make sure that the compass is correctly calibrated. See chapter 3.5 for compass calibration instructions.

3.12 Alarms and Notifications

The SYMBIOS HUD highlights potentially dangerous parameters using blinking colors. Additionally, pop up messages notify you of dangerous situations.

Tank pressure is too low: In this example, the tank pressure is 45 bar and blinking red and white.

Gas MOD exceeded: If the selected pO$_2$ for the gas is exceeded, the depth value will blink white and red.

Decompression stop depth or ceiling violation: The decompression stop depth value will blink white and red. A pop up warning will be visible if you violate the ceiling depth.

Safety stop incomplete: If the safety stop is not completed, a yellow warning will be visible at the end of the dive when the computer enters surface mode.

Tissues saturation reset: If the user performs a tissue saturation reset, a warning will appear while on the surface.

Battery low: When the battery level of the HUD is below 15%, a battery low warning alert will appear.

Notifications in Sidemount Mode

SWITCH SIDE will appear as a pop up if the tank pressure between left and right tank differs by more than 30 bar.

NOTICE

This function is only available if both the left and right tanks are equipped with tank pods paired to the SYMBIOS HUD.

Alarms in CCR mode

In CCR mode, if one sensor pO_2 level is below 0.3 bar/ATA, the pO_2 value of a sensor will blink red and blue.

In CCR mode, if one or more sensors pO_2 levels are above 1.6 bar/ATA, the pO_2 value of the sensor will blink white and red.

In CCR mode, if the average pO_2 value falls below 0.3 bar/ATA, the PO2 LOW warning will pop up.

In CCR mode, if the average pO_2 value rises above 1.6 bar/ATA, the PO2 HIGH warning will pop up.

NO CCR SIGNAL will pop up when the SYMBIOS HUD does not receive wireless data for more than 30 seconds.

CCR BAT will pop up when the remaining battery capacity of the CCR is less than 20%.
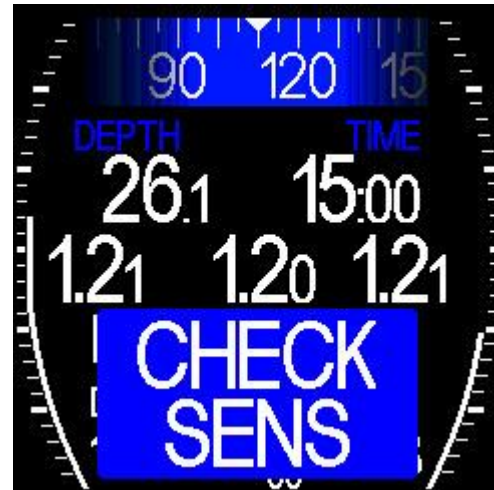
CHECK SENS will pop up when the controller and sentinel read pO_2 values that differ by more than 0.1 bar/ATA.

SCRUB LOW will pop up when the scrubber timer is used and the remaining scrubber time is less than 15%.

For more advanced notifications while diving with a SYMBIOS CM eCCR, please consult the SYMBIOS CM eCCR user manual.

NOTICE

Press and hold both buttons to confirm an alarm and deactivate a pop up message or vibration alarm.

4 Specifications

4.1 General Specifications

_ Maximum operational depth: 120 m/394 ft

_ Full color transflective sunlight readable TFT Screen, 320 x 240 pixel, RGB

_ Digital Pressure Sensor, 300 m/984 ft rated

_ Depth resolution: 0.1 m/0.3 ft

_ Temperature resolution 0.1 °C/32 °F

_ Digital compass, tilt compensated

_ 2 channel magnetic wireless interface,125 kHz

_ BT interface

_ USB interface

_ Housing made from glass fiber reinforced polyamide

_ The depth of equipment certification according to EN250:2014 is 50 m.

_ The air supply for equipment compliant with EN250:2014 shall meet the requirements for breathable air in accordance with EN 12021.

4.2 Decompression Algorithm

_ Bühlmann ZH-L16C decompression model

_ 16 compartments for nitrogen, 16 compartments for helium

_ Gradient factors

_ No-fly time indicator

_ Automatic altitude adaption

AIR / NITROX / TRIMIX open circuit diving:

_ 5 gas settings for open circuit diving

Closed circuit rebreather diving:

_ 3 diluent gas setting for closed circuit diving

4.3 Electrical specifications

_ 32 bit microprocessor

_ Rechargeable Li Ion battery, 4.2 V, 300 mAh

_ Rechargeable via USB, maximum charge current 350mA

_ Autonomy in standby mode: 1 year

_ 25 hours (display brightness set to 5) operation during diving

_ Charge time 4 hours

_ Interface: Wireless, Electromagnetic

4.4 Dive data storage

_ 32 GB storage capacity

_ Dive data storage interval in dive mode: 5 seconds

_ Memory accessible via USB (SYMBIOS HUD is recognized as Mass Storage Device)

_ Memory also accessible via wireless BT5.0 interface

4.5 Testing and validation

The SYMBIOS HUD was tested according to various EU-Normatives and has passed those tests, thus is CE compliant. For more information, please see section CE and FCC.
In addition to many test dives in sea and fresh water, numerous simulated dives were carried out in the laboratory and in a hyperbaric chamber to validate the correct function of the computer and the correct implementation of the decompression model. The code was validated against Eric

C Baker's implementation of the Bühlmann ZH-L16 algorithm with Gradient Factor extension.

The SYMBIOS HUD together with the SYMBIOS Tank Pod were tested according to EN250:2014.

Prior to shipment, your SYMBIOS HUD was tested for water and pressure resistance.

5 Troubleshooting

The SYMBIOS HUD does not switch on.

— Charge the SYMBIOS HUD for at least 3 hours. If the SYMBIOS HUD is completely discharged, it loses all decompression information and is reset to default settings. It should restart shortly after charging begins.

The SYMBIOS HUD is connected to a USB charger but does not charge.

— Check the cable and the connector pins for corrosion and dirt. Clean if possible.

— Use a charger that can output at least 800mA and a voltage of 5V.

The SYMBIOS HUD is outside the water, but it is in dive mode and the displayed depth is greater than 0.5 m/1 ft.

— This can happen when the SYMBIOS HUD is exposed to a sudden drop of atmospheric pressure. In this case,you must reset the SYMBIOS HUD. Simply attach the USB cable to the SYMBIOS HUD and plug it into a charger. In this specific case, the SYMBIOS HUD will be reset after a few seconds. All decompression information and user settings are lost after a reset.

The tilt angle is incorrect.

— Check if the tilt sensor is paired.

— Perform a calibration of the tilt sensor.

The tank pressure is not reported correctly.

— Check if the SYMBIOS Tank Pod is paired correctly.

— Check the battery voltage of the SYMBIOS Tank Pod in the pairing menu.

— Check if the SYMBIOS Tank Pod is pressurized.

— Check if the SYMBIOS Tank Pod is within the maximum transmission range of 90 cm/35 in.

6 Firmware Update

Complete the following steps to perform a firmware update:

1. Connect the SYMBIOS HUD to your PC.
2. The SYMBIOS HUD will be recognized as a mass storage device.
3. Download the latest firmware.
4. Unpack the firmware zip file: RNO_HUD_FW_Vx_xx_xx.zip.
5. Copy the files from the zip file to the mass storage device.
6. Safely remove the mass storage device.
7. Disconnect the SYMBIOS HUD from your PC.

The SYMBIOS HUD will then update with the new firmware.

Firmware updates can also be performed using the HALCYON Dive App.

NOTICE

The version of the firmware on your SYMBIOS HUD is shown in menu → SYSTEM → FIRMWARE VERSION.

NOTICE

Make sure that the SYMBIOS HUD is fully charged before performing a firmware update.

⚠ WARNING

All decompression information and settings may be lost after a firmware update.

⚠ WARNING

Avoid a firmware update between repetitive diving. Performing a firmware update between dives will cause the SYMBIOS HUD to lose decompression data and the remaining compartment inert gas data from the previous dives; thus, the no-decompression times and decompression calculations for the next dives may be incorrect.

7 Warranty

HALCYON LIMITED WARRANTY

HALCYON warrants that, during the warranty period, HALCYON or a HALCYON authorized service center will, at its sole discretion, remedy defects in materials or workmanship free of charge either by repairing, replacing, or refunding subject to the terms and conditions of this limited warranty.

Warranty period(s):
_ Begins at the date of original purchase.
_ Includes two years for products unless otherwise specified.
_ Includes one year for accessories.
_ Includes six months for rechargeable batteries.

The limited warranty does not cover:

_ Normal wear and tear such as scratches, abrasions, alteration of the color, or defects caused by rough handling
_ Defects or damage resulting from use contrary to intended or recommended use, improper care, negligence, and/or accidents such as dropping or crushing
_ Printed materials and packaging

The limited period is not enforceable if the product or accessory has been:
_ Opened
_ Repaired using unauthorized spare parts
_ Repaired by an unauthorized service center
_ Exposed to chemicals including, but not limited to, sunscreen sprays, lotions, creams, and insect repellents

7.1 Limitations of Liability

With The Purchase Of The Symbios Hud, You Hereby Agree To The Following Exclusions And Limitations Of Halcyon 'S Liability To You.

You Agree And Understand That Scuba Diving Is A High Risk, Possibly Life-Threatening Activity, And The Use Of The Symbios Hud Is In No Way A Substitute For Proper Scuba Training And Valid Certification.

Because Of The Number Of Variable Scenarios, As Well As The Different Degrees To Which They May Affect Individuals Engaged In Scuba Diving, You Understand And Agree That The Use Of This Product Will Not Prevent Decompression Sickness (Dcs) Or Any Other Condition Or Injury Incurred While Using This Product.Halcyon Does Not Warrant Nor Does It Guarantee That Use Of This Product Will Prevent

Decompression Sickness Or Any Other Condition Or Injury Incurred While Using This Product.

These Influencing Variables May Include, But Are Not Limited To, Dehydration, Obesity, Advanced Age, Physical Injuries, Or Other Physical Or Mental Conditions Of The Diver, As Well As Environmental Extremes Of Heat Or Cold, Poor Training, Or Unsound Diving Practices, Any Of Which May Promote The Onset Of Decompression Sickness Or Cause Other Harmful Effects.

The Symbios Hud Was Tested According To En13319 And Was Evaluated In Numerous Test Dives. However, There May Still Be Errors In The Software, That Were Not Identified Yet And That May Lead To Malfunctions Of The Symbios Hud. Therefore, Halcyon Recommends That You Always Carry And Use A Backup Dive Computer Or A Dive Table In Combination With A Depth Gauge And A Watch.

You Agree That You Understand And Accept All Risks Associated With Diving, And That Halcyon, Its Elected And Appointed Officials, Employees, Volunteers, Or Others Working On Behalf Of Halcyon Are Not Liable To You Or Any Other Person, Including Your Heirs, Executors Or Personal Representatives, For Any Loss, Damage, Cost, Expense Or Claim Arising From, Caused By, Or Relating To Your Personal Injury Or Death While Diving, Even If Your Personal Injury Or Death Is Caused, In Whole Or In Part, And Directly Or Indirectly, By The Purchase Of The Symbios Hud Or Your Use Thereof, Or Arising From Breach Of The Warranty, Breach Of Contract, Negligence, Strict Tort, Or Any Other Legal Or Equitable Theory, Even If Halcyon Knew, Or Should Have Known Of The Likelihood Of Such Damages, And Regardless Of Whether Or Not The Head Up Diving Computer

Functioned Properly Or Was Defective In Any Way. Halcyon Shall Not Be Liable For Delay In Rendering Service Under The Limited Warranty, Or Loss Of Use During The Time The Product Is Being Repaired.

You Hereby Irrevocably Waive And Release Halcyon , Its Elected And Appointed Officials, Employees, Volunteers, Or Others Working On Behalf Of Halcyon From Any Liability Or Obligation To You Or Your Heirs, Executors Or Personal Representatives For Any Loss, Damage, Cost, Expense, Or Claim Arising Out Of, Caused By Or Relating To Your Personal Injury Or Death While Diving, Even If Your Personal Injury Or Death Is Caused, In Whole Or In Part And Directly Or Indirectly, By The Symbios Hud Or Your Use Of The Symbios Hud, Or Arising From Breach Of The Warranty, Breach Of Contract, Negligence, Strict Tort, Or Any Other Legal Or Equitable Theory, Even If Halcyon Knew, Or Should Have Known Of The Likelihood Of Such Damages, And Regardless Of Whether Or Not The Symbios Hud Functioned Properly Or Was Defective In Any Way.

You Must Read And Accept The Agreement For All Limitations And Exclusions Of Halcyon 'S Liability To You.

8 Notices

8.1 CE Compliance

The SYMBIOS HUD complies with:

— EN250:2014: The combination of a Halcyon SYMBIOS HUD and the Halcyon Symbios Tank Pod is a personal protective equipment under the Regulation (EU) 2016/425. Polski Rejestr Statków S.A, al. Gen. Józefa Hallera 12680-416 Gdansk,

Poland, Notified Body No. 1463 performed EU type-examination (Module B) of the Regulation (EU) 2016/425 Personal Protective Equipment and issued EU type-examination certificate Nr CW/PPER/73/08/2025.   The EC Type examination of the SYMBIOS HUD together with the Halcyon Symbios Tank Pod was conducted by Polski Rejestr Statków S.A, al. Gen. Józefa Hallera 12680-416 Gdansk, Poland, Notified Body No. 1463. In this case, the SYMBIOS HUD complies with EN250:2014 – respiratory equipment - opencircuit self-contained compressed air diving apparatus – requirements, testing and marking – clause 6.11.1 Pressure Indicator for use with equipment that is compliant with EN12021.The air supply for equipment compliant with EN250:2014 shall meet the requirements for breathable air in accordance with EN 12021. The depth of equipment certification is 50 m.
 The Halcyon Symbios Handset or Symbios HUD in combination with the Halcyon Symbios Tank Pod are subject to the conformity assessment procedure conformity to type based on the quality assurance of the production process plus supervised product checks at random intervals (Module D) under surveillance of the Polski Rejestr Statków S.A, al. Gen. Józefa Hallera 12680-416 Gdansk, Poland, Notified Body No. 1463

▬ EN13319 (European standard for depth gauges)

▬ Regulation (EU) 2014/53, Radio Equipment Directive

▬ EN 300 330:2017 V2.1.1 (Radio spectrum), Short Range Devices (SRD); Radio equipment in the frequency range 9 kHz to 25 MHz and inductive loop systems in the frequency range 9 kHz to 30 MHz; Harmonised Standard covering the

essential requirements of article 3.2 of Directive 2014/53/EU.

▬ EN 55032:2015 + A1:2020 + A11:2020 (EMC), Electromagnetic compatibility of multimedia equipment

▬ Emission requirements.

 The full text of the EU declaration of conformity is available at https://halcyon.net/support under *Instructions/Manuals > EU Declaration of Conformity Documents.*

8.2 Trademark

Halcyon® and the H logo® are registered trademarks of Halcyon Manufacturing, Inc. The Halcyon Cinch is protected by U.S. Patents Nos. 8,398,337 and 10,407,142 and a corresponding European Patent. Halcyon common law trademarks include, without limitation, Symbios™, Multifunction Compensator™, Cinch™, H-Lok™, X-Connector™, Eclipse™, Explorer™, and Evolve™ wings, BC Storage Pak™, Active Control Ballast™, Diver's Life Raft™, Surf Shuttle™, No-Lock Connector™, Helios™, Proteus™, and Apollo™ lighting systems, Scout Light™, Pathfinder™ reels, Defender™ spools, and the RB80™ rebreather.

8.3 Copyright

8.4 Disclaimer

Halcyon Manufacturing, Inc. reserves the right to make changes or improvements to its products, manuals, and specifications at any time without prior notice.

While every effort has been made to ensure accuracy, Halcyon Dive Systems assumes no liability for errors or omissions in this document.

Users are responsible for familiarizing themselves with the latest version of this manual and for following all applicable safety and maintenance instructions.

8.4.1 Translation Note

This manual may be available in multiple languages to comply with regional requirements. In the event of discrepancies between translations, the English version shall prevail.

9 Identification

The SYMBIOS HUD is laser marked with a label containing information about the manufacturer, the model, CE and FCC symbols, and the serial number indicating manufacturing year and month. The first 2 digits of the serial number are the last 2 digits of the production year.

9.1 FCC

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radi-ate radio frequency energy and, if not in-stalled and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

— Reorient or relocate the receiving antenna.

— Increase the separation between the equipment and receiver.

— Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.

— Consult the dealer or an experienced radio/ TV technician for help.

10 Information

Halcyon Dive Systems
24587 NW 178th Place
High Springs, FL 32643
USA

info@halcyon.net
Tel: +1.800.HALCYON (425.2966)

European point of contact:
Halcyon Europe Sp z o.o.
Wodnika 50, Pav 6
80-299 Gdańsk
Poland

Appendix: Menu Tree

For a detailed visual overview, see the menu tree on the next page.

You can also view or download the Menu Tree as a separate PDF for reference or printing:
https://symbios.halcyon.net/files/Halcyon-Symbios-Menu-Tree-Full.pdf

Press and hold button A to enter the menu

Quick Tips – Using the Dive Computer

Cancel Warnings & Alarms
_While diving, press and hold both Buttons A and B simultaneously to cancel active warnings or alarms

Custom Function Button (Button B)
_Button B can be configured in the SYSTEM → CUSTOM FUNC menu
_Available options: Best Gas, Stopwatch, Waypoint, or set to Off

CCR FSP Mode Behavior
_When operating in CCR FSP mode, Button B is automatically assigned to toggle between High Setpoint, Low Setpoint, and Bailout

---

STOP WATCH
Start/Reset to stop watch

RESET ⌀ DEPTH
Reset the average depth

GAS SELECT
Select a gas from the gas table

CCR BAILOUT
Only visible in FSP and CCR (when paired)

> **AUTO**
> *Automatic switch between Bailout and closed Circuit mode only available if the CCR has an automatic BO/CC sensor*
>
> **CC**
> *Closed Circuit mode (overrides auto setting)*
>
> **BAILOUT/OC MODE**
> *Bailout/OC mode (overrides automatic setting)*

CCR SETPOINT
Only Available in menu while in CCR FSP Mode

> **SETPOINT 1.2 HIGH**
> *Select or edit high PO2 setpoint when diving in CCR FSP mode*
>
> **SETPOINT 0.7 LOW**
> *Select or edit low PO2 setpoint when diving in CCR FSP mode*

HEADING
Select or edit up to 3 headings

WAYPOINT
Select or save up to 64 waypoints
This function requires a GPS signal

TRAINING
Only available in OC/SM mode

> **PROFILES RESET**
> *Only available when a profile is selected*
>
> **TRAINING PROFILES 1-6**

SETTINGS

> **DIVE MODE**
>
> > **OC**
> > *Open Circuit diving mode*
> >
> > **CCR**
> > *Closed Circuit Rebreather diving mode*
> > *This mode only works with connected rebreather*
> > *Use FSP mode for non-connected Rebreather*
> >
> > **CCR FIX SP**
> > *Closed Circuit Rebreather diving mode with Fixed Setpoints*
> >
> > **SIDEMOUNT**
> > *Sidemount diving*
> >
> > **BOTTOM TIMER**
> > *Bottom timer mode*
> > *In this mode, no deco calculations are carried out*
> > *After diving with the bottom timer mode, other dive modes cannot be enabled for a period of 24h*
>
> **EDIT GASES** — **MODIFY**
>
> > **EDIT**
> > *Allows to edit the O2 and He fraction of one gas*
> >
> > **ENABLE/DISABLE**
> > *Enabled gases are available for quick selection and used to calculate decompression obligation.*
> >
> > **PRESET**
> > *Allows to select a gas from the pre-programmed gas library*
>
> **GFL/GFH**
> *Set gradient factor high and low*
> *The default is 45/80*
>
> **OC PO2 DECO**
> *Used to suggest the best gas based upon the PO2 of the gas with the highest PO2 among enabled gases*
>
> **OC PO2 BOTT**
> *Maximum allowed oxygen partial pressure for MOD calculation of the bottom gas*
> *Bottom gas is defined as the gas with the lowest oxygen fraction within the enabled gases for the dive*
>
> **CCR SETTINGS**
>
> > **SCRUBBER**
> >
> > > **TIMER**
> > > *Shows the remaining scrubber time in min and allows to reset the timer*
> > >
> > > **ENABLE/DISABLE**
> > > *Enables or disables the scrubber timer*
> > >
> > > **TIMER MAX**
> > > *Sets the max allowable use time of the scrubber*
> >
> > **PO2 SENSOR**
> > *Only available with connected CCR*
> > *Enabling or disable O2 sensors to include/exclude them from deco calculations*

TRIM SENSOR ── **CALIBRATE**
*Only showing when a trim
sensor has been paired*

GFL/GFH
*Allows the diver to select or modify the
Gradient Factor Low and Gradient Factor
High. The default setting is 45/80*

HORIZONTAL
*This function requires that the dive computer is
paired with a combined tank pressure/trim
sensor and that the sensor is pressurized
Bring the diving tank into a horizontal position,
where the divers tank(s) is/are lying horizontally
on the back use this menu item to perform then
a horizontal calibration of the trim sensor*

VERTICAL
*This function requires that the dive computer is
paired with a combined tank pressure/trim
sensor and that the sensor is pressurized bring
the diving tank into a vertical position, where the
divers tank(s) is/are standing vertically with the
tank valves up use this menu item to perform
then a vertical calibration of the trim sensor*

PAIRING

TANK POD

CCR INTERFACE
Pair a CCR interface

GPS
Pair a GPS buoy

TRIM SENSOR
Pair a trim sensor

DPV
Pair a Diver Propulsion Vehicle

GAS ANALYZER
Pair a Gas Analyzer

TO GAS
*Pair a tank pod with a gas setting in
the gas table*

TO NUMBER
*Pair a tank pod to T1, T2, T3 or T4
(indipendent of the gases in the gas
table)*

LOGBOOK
*This sub menu contains all previous dives
Each dive can be selected to display dive
relevant information including the depth and
temperature profile or the pO2 sensor
signals in CCR mode*

SYSTEM

SLEEP
*Selection shuts down
the computer*

COMP CAL
*Calibration of the internal compass
Activate this menu item and move then the
computer in a figure 8 in front of you*

COMP DECLIN
Setting of the compass declination

BRIGHTNESS
Display brightness, default setting is 5

TIME
Set time

DATE
Set date

UTC
Set UTC time zone

SAFETY STOP
*Enable/disable a safety stop
If enabled, at each dive with a maximum
depth >10m/30ft, the diver will be prompted
to do a 3 min safety stop at a depth between
3 and 6m*

LAST STOP
Allows user to set last stop at 3m or 6m

VIB ALARM
Enable/disable vibration alarms

LANGUAGE
Language setting

UNITS
Metric/imperial units

DENSITY

EN13319
*Depth calculation is based on EN13319, where 1
bar pressure increase equals to 10m*

SEA WATER

FRESH WATER

STYLE

CLASSIC

MODERN

SLEEP TIMEOUT
*Time after which the dive
computer switches into sleep
mode*

DIVE TIMEOUT
*Time after which the dive computer switches
from dive mode into surface mode*

ORIENTATION
*Orientation of the Handset on left
or right where the buttons are
facing the diver's hand*

WIRELESS SCRN

OFF

ADDITIONAL
Enables a wireless screen, which shows information from all transmitters in close vicinity, that are NOT paired with the dive computer. This is the preferred setting, if you want to monitor for instance the tank pressure of your buddy.

ALL
Enables a wireless screen, which shows information from all transmitters in close vicinity.

BUDDY SCREEN
Provides access to buddy's wireless data transmission

DECO SCRN
Enable or disable a deco screen, which show additional deco information including ceiling, deco stops, current gradient factor and surface gradient factor

DEPTH CHART
Provides graphical representation of dive profile

TRAINING
Enable or disable the training simulation function, which allows users to create and perform simulated decompression stops

CUSTOM FUNC
Setting of the default function of "Press and hold the button B

BEST GAS
Press and hold the button B is used to confirm the suggested gas switch

STOP WATCH
Press and hold the button B is used to start/reset the stop watch

WAYPOINT
Press and hold the button B is used to save a waypoint This requires reception of a gps signal

OFF

CF DEFAULT
Enable/disable the default which governs the screen that will be present 30s after viewing other screens

NO/DEFAULT
Setting no default will maintain the selection and not return to any particular screen

ACTIVE GAS
Custom field will return to active gas as the default after 30s

T1
Custom field will return to T1 as the default after 30s

T2
Custom field will return to T2 as the default after 30s

T3
Custom field will return to T3 as the default after 30s

T4
Custom field will return to T4 as the default after 30s

CF CONTENT
Enable/disable the items for the custom field (lower left field on the left side)

AVERAGE DEPTH
Deactivated

BATTERY SOC
State of charge of the inbuilt battery

CNS
CNS O2 accumulation

TEMPERATURE

ASCENT SPEED

HEADING

PO2
Only in bottom timer mode Current PO2 of gas being used

GF NOW
Current gradient factor

GF SURFACE
Hypothetical gradient factor if one would surface at this point of the dive

GAS DENSITY
Density of active gas being breathed

CCR FO2
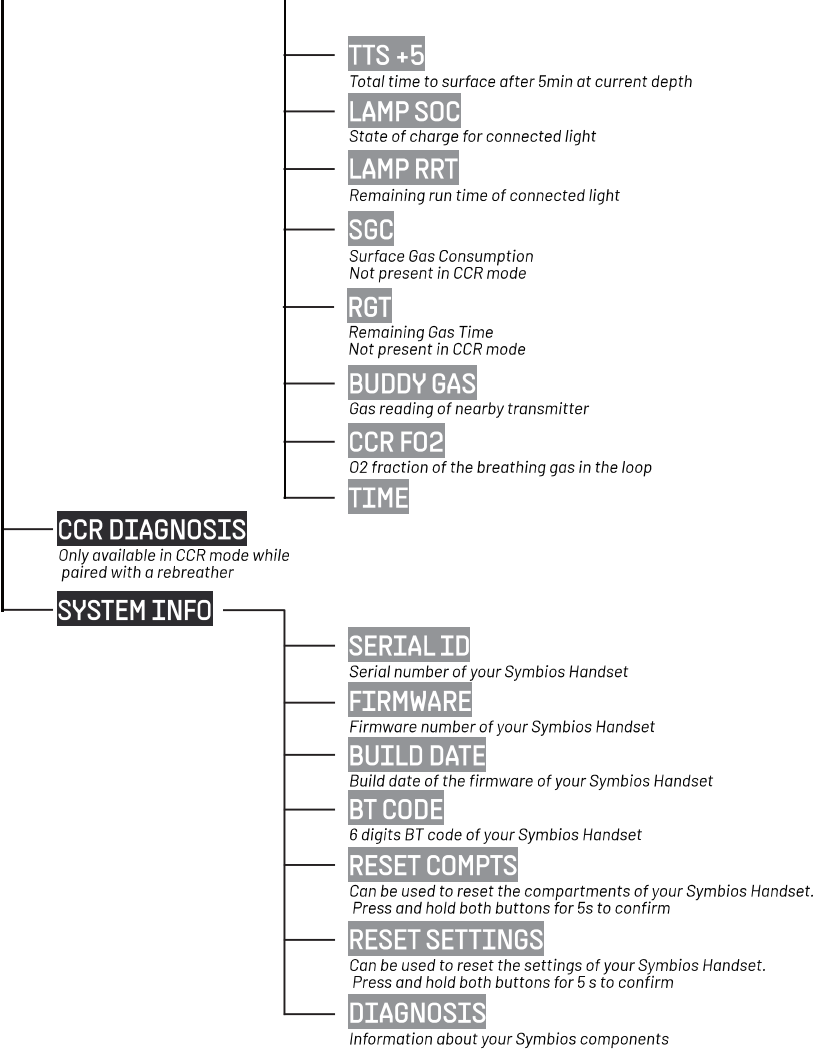*Available in FSP and CCR mode*

DILUENT PO2
Only available in CCR mode

CCR SETPOINT
Only available in CCR mode Present by default in FSP

CEILING
Decompression ceiling

TTS +5
Total time to surface after 5min at current depth

LAMP SOC
State of charge for connected light

LAMP RRT
Remaining run time of connected light

SGC
Surface Gas Consumption
Not present in CCR mode

RGT
Remaining Gas Time
Not present in CCR mode

BUDDY GAS
Gas reading of nearby transmitter

CCR FO2
O2 fraction of the breathing gas in the loop

TIME

CCR DIAGNOSIS
Only available in CCR mode while
paired with a rebreather

SYSTEM INFO

SERIAL ID
Serial number of your Symbios Handset

FIRMWARE
Firmware number of your Symbios Handset

BUILD DATE
Build date of the firmware of your Symbios Handset

BT CODE
6 digits BT code of your Symbios Handset

RESET COMPTS
Can be used to reset the compartments of your Symbios Handset.
Press and hold both buttons for 5s to confirm

RESET SETTINGS
Can be used to reset the settings of your Symbios Handset.
Press and hold both buttons for 5 s to confirm

DIAGNOSIS
Information about your Symbios components

HALCYON™ SYMBIOS