AVELO MODE

Operating Instructions

SHEARWATER

DANGER

Shearwater dive computers are capable of calculating decompression stop requirements. These calculations are at best a guess of real physiological decompression requirements. Even when following computer directions exactly, there is a risk of decompression sickness causing injury or death. Dives requiring staged decompression are substantially riskier than dives that stay well within no-stop limits.

YOU REALLY ARE RISKING YOUR LIFE WITH THIS ACTIVITY.

WARNING

Shearwater computers have bugs. Although we haven't found them all yet, they are there. It is certain that there are things that our computers do that either we didn't think about, or planned for them to do something different. Never risk your life on only one source of information. Use a second computer or tables. If you choose to make riskier dives, obtain the proper training and work up to them slowly to gain experience.

Your computer will fail. It is not whether it will fail but when it will fail. Do not depend on it. Always have a plan on how to handle failures. Automatic systems are no substitute for knowledge and training.

No technology will keep you alive. Knowledge, skill, and practiced procedures are your best defense (Except for not doing the dive, of course).

WARNING

The Avelo system requires special training to operate safely. Do not use an Avelo dive system or the Shearwater Teric's Avelo dive mode without professional training. Visit www.diveavelo.com for details.

The Shearwater Avelo mode is an extension of the Air Integration system found on the Teric dive computer. You must read and understand all the information and warnings in the Teric's operating instructions prior to using the Avelo dive mode.

You must turn on your computer and purge all water from your Hydrotank prior to each dive for the Avelo dive mode features to report accurately.

Always dive with a second source of breathing gas information such as an analog SPG. If you lose the ability to track your remaining gas or if multiple sources of breathing gas information disagree, safely end the dive.

Ensure your tank valve is open prior to every dive. Always take a few breaths from your regulator or purge your regulator's second stage while monitoring your gas pressure for a full 10-15 seconds prior to entering the water to ensure your tank valve is turned on.

Conventions Used in this Manual

These conventions are used to highlight important information:

INFORMATION

Information boxes contain useful tips for getting the most out of Avelo Mode

CAUTION

Caution boxes contain important instructions on operating Avelo Mode.

WARNING

Warning boxes contain critical information that may affect your personal safety.

Notes on this Manual

This manual only covers the features of the Avelo mode system. Unless otherwise noted, all features behave as they do in other dive modes as described in the Teric Operating Instructions Manual.

This manual contains cross-references between sections to make it easier to navigate. Underlined text indicates the presence of a link to another section.

Firmware Version: V30

This manual corresponds to firmware version V30.

Feature changes may have been made since this release and might not be documented here.

Check the release notes on Shearwater.com for a complete list of changes since the last release.

Introduction

When diving Avelo, Shearwater's Avelo mode makes gas planning easier and gives you more dive time than using an analog SPG.

When using the Avelo system a diver cannot use cylinder pressure directly as a measure of remaining gas. The Shearwater Avelo mode makes diving the system simple by displaying remaining gas as a percentage.

Avelo mode also provides several additional features that make diving the Avelo system easier and more enjoyable.

Avelo Mode Features

- Gas remaining as %
- Hydrotank pressure
- Maximum Hydrotank pressure reached on a dive
- Buoyancy calculation during dive
- Button shortcut to reset "buoyancy status" to "neutral"
- Workload calculation to show efficiency of gas usage
- Cloud support for Avelo profiles

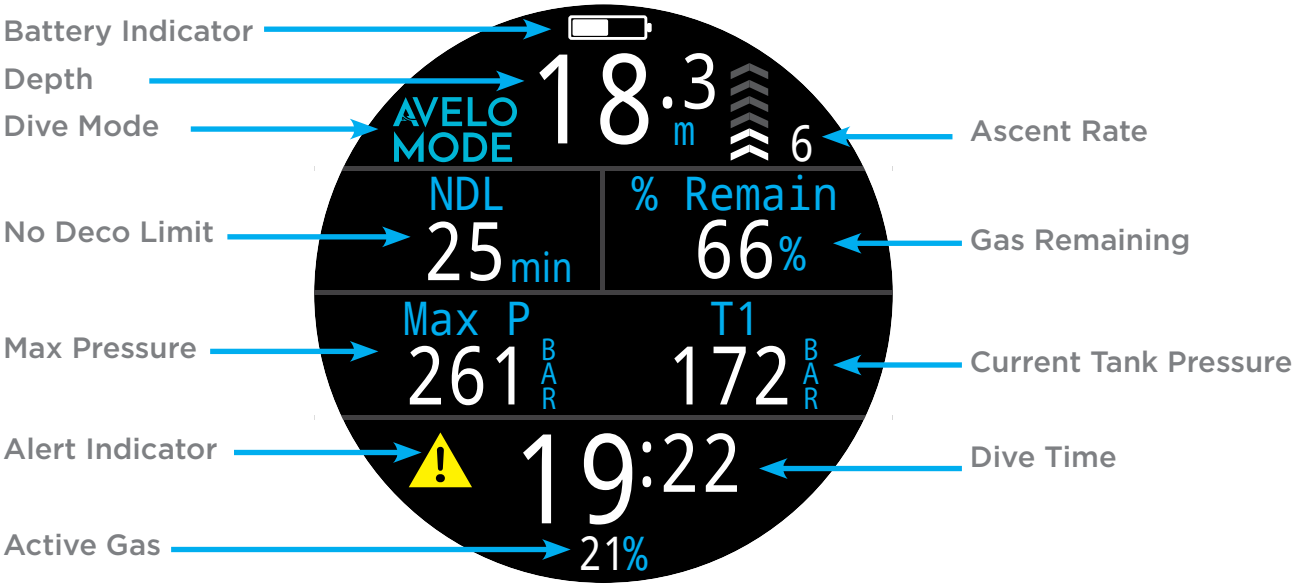
⚠ Caution

This document is not a complete reference or a substitute for professional training. Read your dive computer's operating instructions prior to use and never dive beyond your training. **What you don't know can hurt you.**

Avelo Mode Default Display

Avelo Mode comes pre-configured with the Training Home Screen layout. The other Home Screen Options will be covered in a later section.

As a quick reference, a diagram of the default display is shown below.



Default Avelo Mode Screen Layout

Unlike other dive modes on the Teric, Avelo Mode only supports the “Standard”, 4-line layout. The 3-line “Big” layout is not supported.

In Avelo mode, the % Remain field in the top right position cannot be removed. However, the info row home screen can be customized. See page 13 for more information.

The following sections go into detail about each unique Avelo Mode screen element.

⚠ Caution

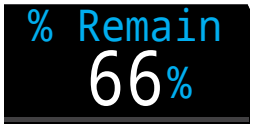
This document is not a complete reference. It only covers features specific to Avelo Mode. You must read the complete operating instructions for your dive computer prior to use. There are safety critical elements of your dive computer that are not covered by this manual that you must understand.

Detailed Avelo Element Descriptions

There are several screen elements that are unique to Avelo Mode. This section will go into detail about how each element works.

% REMAIN

The breathing gas (air) remaining as a percentage.



Normal Display

This display accounts for water being pumped into and being purged out of the Hydrotank to provide a simple measure of remaining gas.

Reserve Warning

When % Remain falls below 30% a Reserve Pressure warning will be shown, and this display will change to yellow.

Critical Warning

When below 15% a Critical Pressure warning will be shown, and this display will change to flashing red.

The 100% point will start at the actual fill pressure detected in the five minutes preceding a dive, before any pump events have been detected. If this pressure is below 200 bar, then 200 bar will be used as the 100% point.

Example 1: A diver's Hydrotank is filled to 220 bar. When the measured pressure, compensated for pump and purge events, reaches 110 bar, the percent remaining will show 50%. Note that the actual pressure displayed (T1) will be greater than 110 bar at this point due to pump events.

Example 2: A diver's Hydrotank is filled to 180 bar, so 200 bar is used at the 100% anchor point. At the start of the dive, even before any pump events, the divers % Remain will only show 90%. Pumping may increase the pressure above 200 bar, but the % remaining will still only show 90%. In this case, the percent remaining will show 50% when the measured pressure, compensated for pump and purge events, reaches 100 bar.

WARNING

There is no artificial reserve built into the % Remain number. When this display element shows 0%, the diver is out of gas. Always proactively manage your dive to prevent out of gas emergencies. Never allow the % Remain number to approach zero during a dive.

MAX P

The maximum gas pressure measured in the Hydrotank during the current dive in bar or psi. This should be noted after the initial pump cycle for each dive, since it can be used to manually calculate the Reserve Pressure as 1/3 of the Maximum Pressure.

T1

The pressure from Transmitter 1 (i.e. the Hydrotank) in bar or psi. Unlike in standard scuba, this value should not be used directly as a measure of remaining gas since pumping into or purging water from the Hydrotank affects this value. If the Max Pressure is known, then the reserve pressure is 1/3 of the Max Pressure. Or use the % Remain as simple measure of remaining gas that already factors in pumping water into and purging water from the Hydrotank.

⚠ Do Not Over-Pump

If the absolute tank pressure reaches 295 bar, a “Stop Pump” warning will be displayed. Do not continue to pump water into the Hydrotank. Continuing to increase pressure in the Hydrotank may result in a free-flowing regulator.

WORK

The current workload as measured by gas consumption rate in liters per minute or cubic feet per minute. This value is independent of depth (i.e. it is the surface adjusted value). Sometimes this value is called RMV (Respiratory Minute Volume) or SAC (Surface Air Consumption). When buoyancy is optimized and you are relaxed, workload will be minimized thus extending remaining gas time.

Hydrotank Size

The diver must select the correct Hydrotank size (8L or 10L) in the Avelo setup menu **before** the dive for Work to be calculated correctly as it is measured in volume per minute and is dependent on the internal volume of the cylinder in use.

The currently selected Hydrotank size is shown in the top level settings menu for convenience.

BUOYANCY

An estimate of the buoyant force acting on the diver in kilograms or pounds of force.

This calculation starts with the parameters entered in the Avelo Buoyancy menu and then tracks pumping, purging, gas consumption and wet suit compression to determine the final buoyancy. If this value is more positive or negative than what can be comfortably managed by the set Tidal Volume, then the value will display in yellow.

Instructions for setting up the Buoyancy menu can be found on page 16.

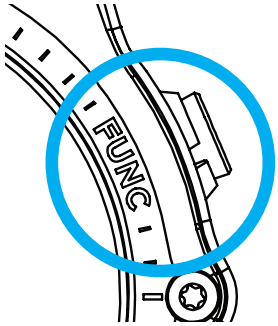
Buoyancy within zone of stability

Buoyancy high, Pump recomended

Buoyancy Low, purge recomended

Reset Buoyancy to Neutral

During a dive if you feel you are perfectly neutrally buoyant, then the FUNC button (top-right) can be used to reset the buoyancy display to zero.



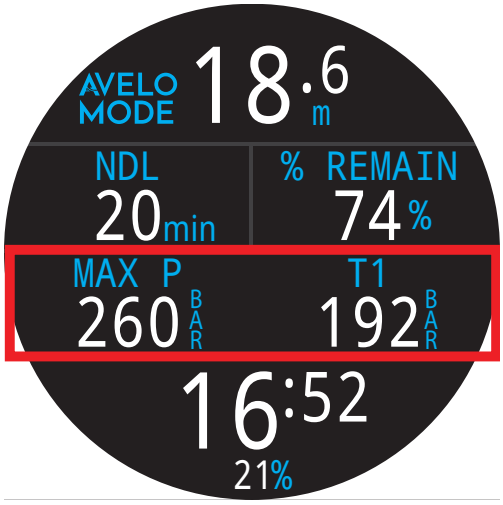
Turn On Your Computer Before The Dive

The diver must turn on their computer and place it in dive mode at least two minutes before entering the water for Avelo mode functions to operate correctly. If you rely on the auto-on feature to put the computer in dive mode when a dive starts, you may miss a pre-dive pump event or the max pressure.

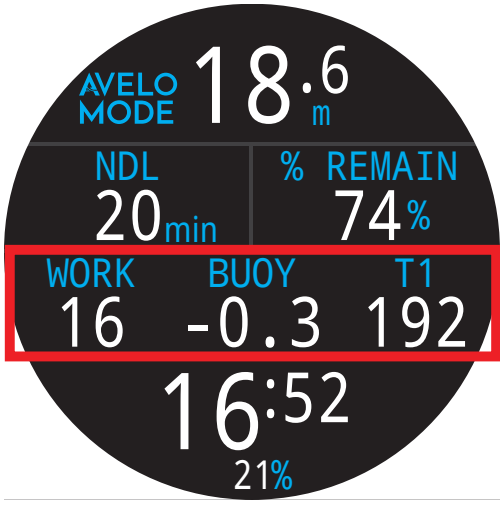
Missing the first pump event will negatively impact the accuracy of the Work and Buoyancy values. The % Remain feature will continue to be accurate.

Avelo Mode Info Screens

Info screens allow you to scroll through additional information during a dive.



Training Mode Home Screen



Performance Mode Home Screen

The first page of the info row on the Teric is called the home screen. There are two preset home screen options to select from, shown above: Training and Performance. You can also customize the home screen with the data elements that are most important to you. For instructions on setting up the home screen, see page 13.

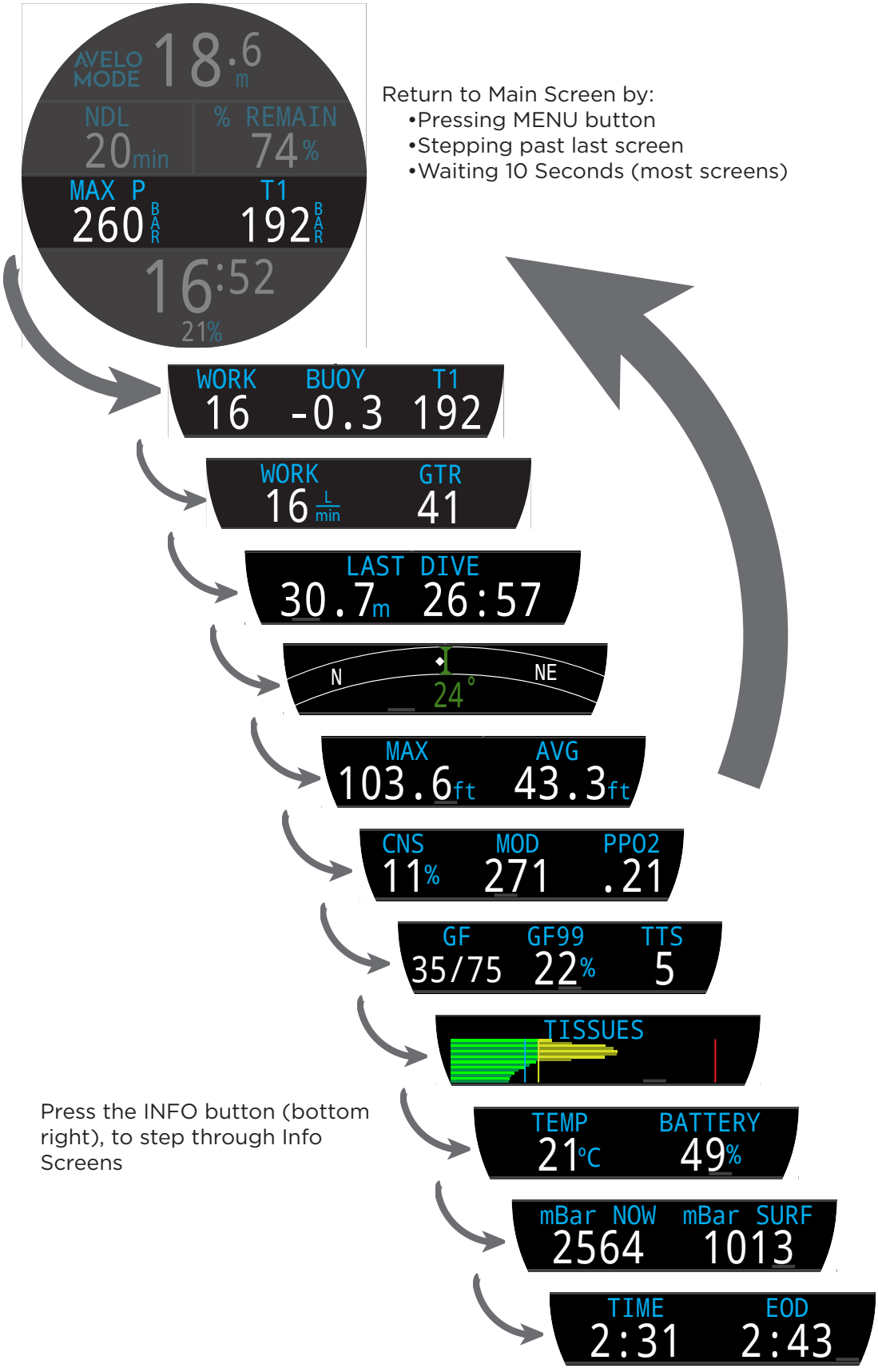
By default, the Avelo Mode home screen is set to Training.

From the home screen, scroll through the info screens by pressing the INFO (bottom right) button.

When all info screens have been viewed, pressing INFO again will return to the home screen.

Pressing the MENU (bottom left) button will also return to the home screen at any time. Info screens automatically time-out after 10 seconds, returning to the home screen. The compass, tissues, training, performance, and other AI screens will not time out.

When either of the preset home screen options are selected, the other option will be the first info screen when scrolling through info screens.



Return to Main Screen by:
- Pressing MENU button
- Stepping past last screen
- Waiting 10 Seconds (most screens)

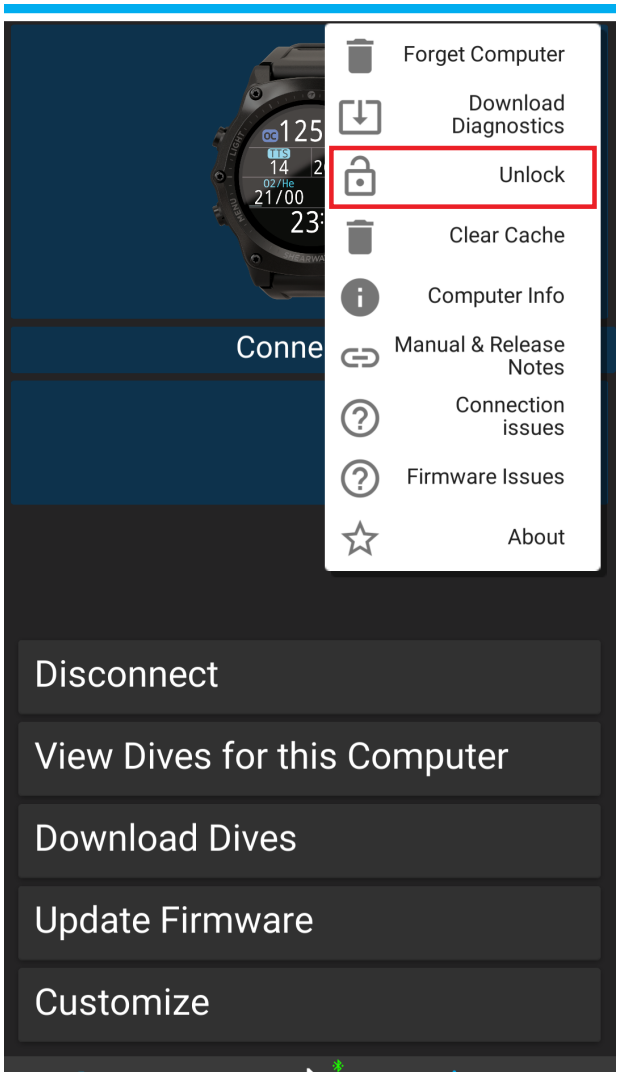
Press the INFO button (bottom right), to step through Info Screens

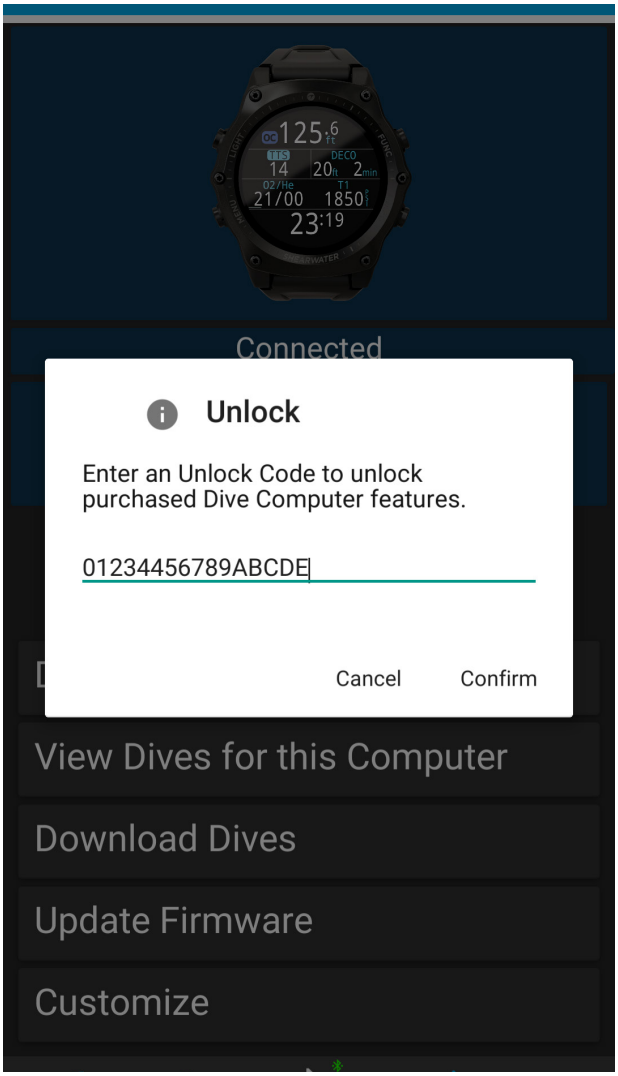
Unlocking Avelo Mode

Avelo mode is an optional firmware feature that requires an unlock code that can be purchased through your local Shearwater dealer. Each unlock code is tied to a unique serial number and will only unlock the corresponding dive computer.

Once you have an unlock code for your Teric, the Shearwater Cloud app can be used to unlock Avelo mode on your dive computer. Connect your dive computer to Shearwater Cloud and select “Unlock” from the hamburger menu at the top right of the connect tab.

A prompt will appear where you can enter your 16-digit unlock code to unlock Avelo mode.



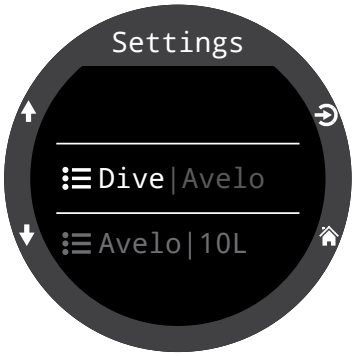


Avelo Mode Setup

All Avelo mode settings must be configured before the dive as the following menus are not available underwater.

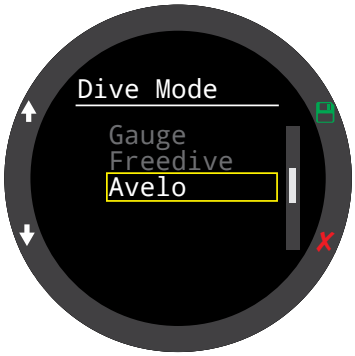
Selecting Avelo Mode

Once Avelo Mode is unlocked, it can be selected in Settings by going to Settings > Dive > Dive Mode and selecting Avelo.



Settings Menu

Dive Settings



Dive Mode

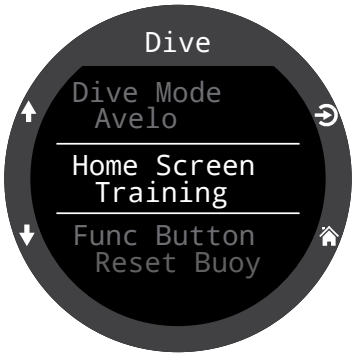
The currently selected dive mode is conveniently shown in grey in the top-level settings menu.

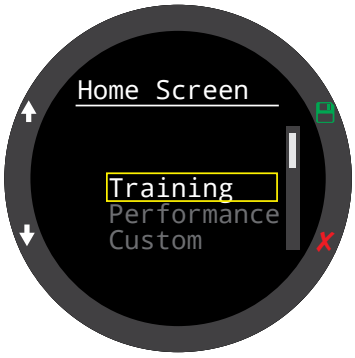
When Avelo Mode is selected, Settings in the Dive Settings menu only impact Avelo mode. So, if you customize your layout in Avelo mode, when you switch back to OC Rec mode, your original settings will be preserved.

Choosing a Home Screen

Home screen options include:

- Training (Default)
- Performance
- Custom



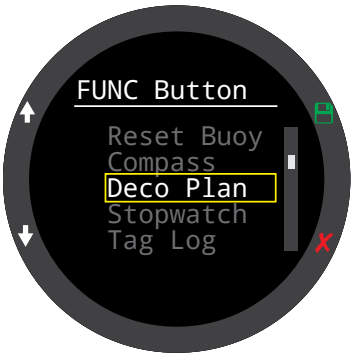


If you choose to customize your home screen, all the normal Teric customization options are available in addition to Avelo Mode display elements. See the Teric operating instructions for a complete list of available display elements.

Reset Buoyancy Function

By default, the Func (top-right) button is set to “Reset Buoy”. This feature allows you to quickly reset the buoyancy display element to 0 kg when you feel like your buoyancy is perfect.

This menu can be used to change the function button to any of the other available functions if you prefer not to use the reset buoyancy feature.



Alternative functions include:

- Compass
- Deco Plan
- Stopwatch
- Tag Log
- No Action

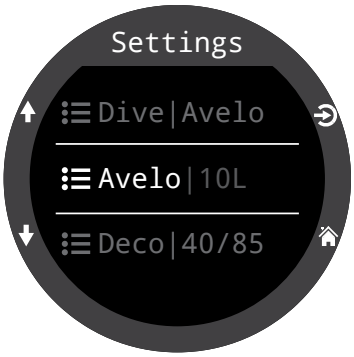
End Dive Delay and Log Rate

Unlike in other modes, the End Dive Delay and Log Rate Settings cannot be modified in Avelo mode.

End Dive Delay is fixed at 5 minutes.
Log Rate is fixed at 5 seconds.

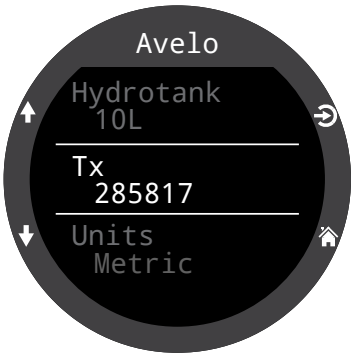
Avelo Setup Menu

In Avelo Mode, the AI menu is replaced by an Avelo Setup menu. The top-level settings menu shows the currently selected Hydrotank size in grey for quick reference.



Hydrotank Size Selection

The two options are 10L and 8L. It's important to select the correct Hydro tank size for the Work display element to be accurate. The % Remain element does not depend on selecting the correct Hydrotank size.



Transmitter Setup

Transmitter setup is the same as other dive modes on the Teric. Input the 6-digit transmitter serial number into the TX field.

Avelo mode uses the same transmitter as T1 used in other modes.

Units

This setting applies to Avelo display element values only.

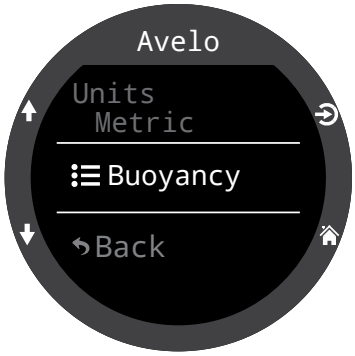
Display	Metric	Imperial
MAX P	bar	psi
T1	bar	psi
Work	l / min	cuft / min
Buoy	kg	lbs

⚠ Caution

This is not a complete reference. You must read your computer's operating instructions to safely use the Air Integration system.

Buoyancy Menu

The buoyancy menu contains settings for calibrating the buoyancy display element.



Body Weight: Mass of the diver in kg or lbs.
Exposure Suit: Buoyant force of exposure suit in kg or lbs.
Added weight: Extra weight added to the system in kg or lbs.
Tidal Volume: Tidal volume of the diver's lungs in ml.

Refer to the Avelo training materials for detailed explanations of how to calculate exposure suit buoyancy and tidal volume.

FAQ

Is Avelo mode available on Shearwater computers other than the Teric?

Avelo mode is currently only available on the Teric dive computer. We hope to bring the Avelo mode option to other computers in the future.

Does GTR behave the same as it normally would?

Yes. GTR behaves exactly as described in the Teric operating instructions manual while using Avelo mode.

Where can I find more information about the Avelo system?

Visit DiveAvelo.com for more information.

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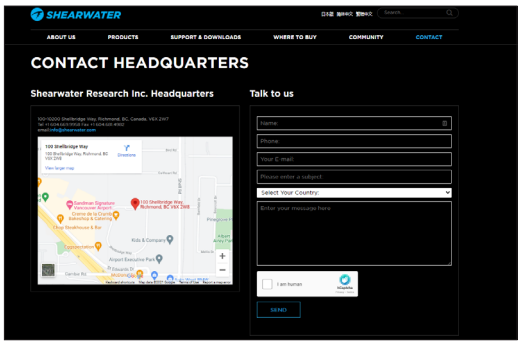

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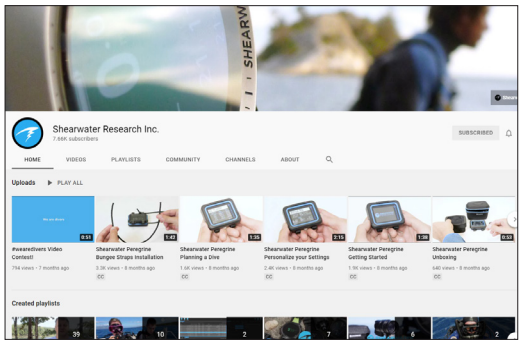

www.youtube.com/shearwaterresearch