

POSEIDON M28

USER MANUAL 2.3



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Conventions Used in this Guide

This User Guide is NOT intended for use as a training manual, or in any way as a substitute for proper training through a legitimate training agency approved by Poseidon AB. It is only intended to provide basic information concerning the Poseidon M28. Throughout this Guide, special alert boxes have been inserted to draw attention to critical information. Three levels of alerts are used in conjunction with color-coded symbols, as follows:



DANGER:

Alert boxes that are **RED** contain extremely critical information related to the safety and well-being of the diver. Failure to comply with information contained in these boxes could lead to serious injury or death.



WARNING:

Alert boxes that are **YELLOW** contain vital information that may impact a diver's safety and/or proper function of the Poseidon M28. Though generally not life-threatening, information contained in these boxes should not be ignored.



IMPORTANT:

Alert boxes that are **BLUE** contain important information about the proper care and maintenance of the Poseidon M28, and that may increase diver comfort or enhance enjoyment during dives.



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Manual Version 2.3 - September 2023

DANGER:

! The Poseidon M28 is an advanced dive computer, which functions in a manner distinctly different from traditional dive computers. Do not attempt to use the Poseidon M28 without a thorough and complete working knowledge of the material contained in this manual. Careless use of the Poseidon M28 can lead to decompression sickness or death in any environment without any prior warning symptoms.

Careless use of the Poseidon M28 at depths underwater greater than 200 msw (meters of seawater) [656 fsw (feet of seawater)] can lead to failure of the computer without any prior warning. This conditions can cause serious injury or death. The Poseidon M28 is equipped with sophisticated electronic control systems, which will allow a properly trained user to avoid these situations. It is the user's responsibility to attentively monitor these systems when using the Poseidon M28 and to have a working knowledge of the abort procedures should a problem arise. The computer calculates decompression stops. These calculations are based on available knowledge and is provided as a guidance and are not exact physiological data. Remember that this device can fail, due to mechanical failure, firmware issues or other technology. Do not depend upon this device solely, use also redundant tools to manage your dive in case of a total failure of this computer. Use at your own risk.



Preface

A WARM THANK YOU!

We are grateful and proud that you choose us as the supplier of your dive gear.

We hope that it will give many good memories along the way and you can look back on this day as a day to remember when you unwrapped your new dive computer.

Features:

- High performance OC and CCR dive computer
- Feature-rich graphics thanks to a the 2.8" TFT LCD Color Display
- Highly intuitive user interface with dual button control
- Enhanced SE7EN with the M28's Rebreather Management System
- Dive-by-Wire™ integration with Poseidon Pod Systems, HUD, HP and other sensors
- Dual decompression algorithm (DCAP and Bühlmann ZHL16C with gradient factors)
- Dynamic interface; Wi-Fi access point.
- Depth rated to maximum 200m / 656ft
- Upgradable firmware



FIRMWARE END USER LICENSE AGREEMENT



IMPORTANT:

By using products containing the firmware (including, but not limited to, dive computer, rebreather, and accessories), you are agreeing to be bound by the terms of the below End User License Agreement.

End User License Agreement

Read the terms of this license agreement (“agreement”) governing the use of the firmware provided to you by Poseidon Diving Systems AB (“Poseidon”) carefully before using the firmware or product containing the firmware.

By indicating your acceptance of these terms, you are (1) representing that you are over the age of 18, (2) representing that you have the right and authority to legally bind yourself, and (3) consenting to be legally bound by all of the terms of this agreement. If you do not agree to all these terms or cannot make such representations, do not accept this agreement, and do not use the firmware or products containing the firmware.

This is an agreement between you, the end user (“Licensee”), and Poseidon (referred to below as “Licensor”). By clicking to accept the terms of this license or using products containing the firmware (all titles and versions), data, documentation (including, but not limited to, dive computer, rebreather, and accessories), you are agreeing to be bound by the terms of this agreement.

Licence Grant

This license gives you the non-exclusive right, non-transferable and not subject to sublicensing, to use the firmware in connection with normal use of dive computers, rebreathers or accessories containing the firmware. The firmware is protected by EU, U.S., and international copyright laws. You have no ownership rights to the firmware.

You understand and agree that the trademarks, trade names, service marks, copyrights, and other proprietary rights of the Licensor are and shall remain the sole and exclusive property of the Licensor, and that you will not hold itself out as having any ownership rights thereto. You further agree that it will make no use of such rights except as provided in this agreement.



You do not have the right to sell, or to reproduce or distribute for sale, the firmware. You have no right to modify the firmware or create any derivative work. You may not reverse engineer, decompile, disassemble, or otherwise access source code or the logical structure and contents of the firmware.

All rights not specifically granted by this agreement are reserved by Licensor.

Disclaimer Of Warranty

Poseidon does not warrant the completeness or accuracy of the firmware, or that its use will meet your needs or be uninterrupted or error-free. To the maximum extent permitted by law, except for the warranties set forth above, the firmware is licensed “as is” and Poseidon disclaims any and all other warranties, express or implied, including, without limitation, implied warranties of merchantability or fitness for a particular purpose.

No Consequential Damages

In no event shall Poseidon be liable for any special, indirect, incidental, or consequential damages including, but not limited to, loss of revenues or profits even if Poseidon has been advised of the possibility of such damages. Waiver of liability license voluntarily releases, discharges, waives, and relinquishes any and all lawsuits, actions, claims, or causes of action for injuries, death, or damages to his/her person or property, whether arising from or as a result of any product defect, whether by design, manufacture, or failure to warn, breach of warranty, or negligent act or omission of the released parties in connection with the design, materials, assembly, testing, structural integrity, performance, instructions for operating or warnings for the use of the firmware and/or the use and operation of the Poseidon product.

Express Assumption Of The Risk

Failure to pay full attention to the operation of your dive equipment, remaining gas volume and decompression obligations could result in serious injury or death. You expressly and voluntarily agree to assume any and all risk of injury, death or damage to my person or property arising from or in conjunction with the use of the firmware and/or the use or operation of the Poseidon product.

Termination Of Transfer

Poseidon may terminate this agreement by disabling the firmware at any time for any reason including, but not limited to, if Poseidon finds that you have violated any



of the terms of this agreement or that you have attempted to exceed the licensed uses in any way. Termination is in addition to and not in lieu of any other remedies available to Poseidon. All provisions relating to property rights shall survive termination. You are not authorized to transfer your rights under this agreement.

User Data

You understand and agrees that any user data generated by your use of the firmware including, but not limited to, personal data, dive logs, information downloaded from your Poseidon products and other user data may be transmitted to and/or accessed by Poseidon and its partners and may be transferred between servers within the EU. You agree that Poseidon may use your data for any purpose as permitted by law and expressly permits Poseidon to publish such data. Publication of user data, if any, shall be anonymous in that your personal information such as their name or product serial number will not be disclosed without your consent. You further agree that Poseidon shall not be liable to you for any lawsuits, actions, claims, or causes of action for injuries, death or damages to his/her person or property, in relation to Poseidon having access to or the publication of any of your user data. Poseidon shall have no duty to warn you, or any third party of any information transmitted to or that Poseidon shall have access to as the result of your use of the firmware. Poseidon's privacy policy is available [here](#). This agreement contains the complete understanding between the parties and supersedes and replaces any prior or contemporaneous agreement or understanding, whether oral or written, with respect to its subject matter. This agreement shall be governed by the laws of Sweden. Any action relating to this agreement shall be brought to court in Gothenburg, Sweden and the parties consent to the personal jurisdiction of that court. Any mediation, suit or other proceeding must be filed within one (1) year of the date of any accident, incident, or occurrence upon which the claim for relief is based. You agree and acknowledge that the terms and conditions of this agreement shall continue in force and effect now and in the future and all times during which you use the firmware and/or the Poseidon products, and shall be binding upon my heirs, executors, administrators, personal representatives, and/or anyone else claiming on my behalf.



Conformance with CE requirements

European diving depth gauge standard, i.e. EN 13319.

EN61000 (emission & immunity).

FCC 47 CFR. This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: This device may not cause harmful interference, and this device must accept any interference received, including interference that may cause undesired operation.

This product has been tested to comply with FCC standards.



Poseidon Diving Systems AB is certified according to ISO 9001





Chapter 1 Overview

This chapter describes the steps to assemble and prepare the Poseidon M28 for diving. The M28 is a modular device with subsystems.

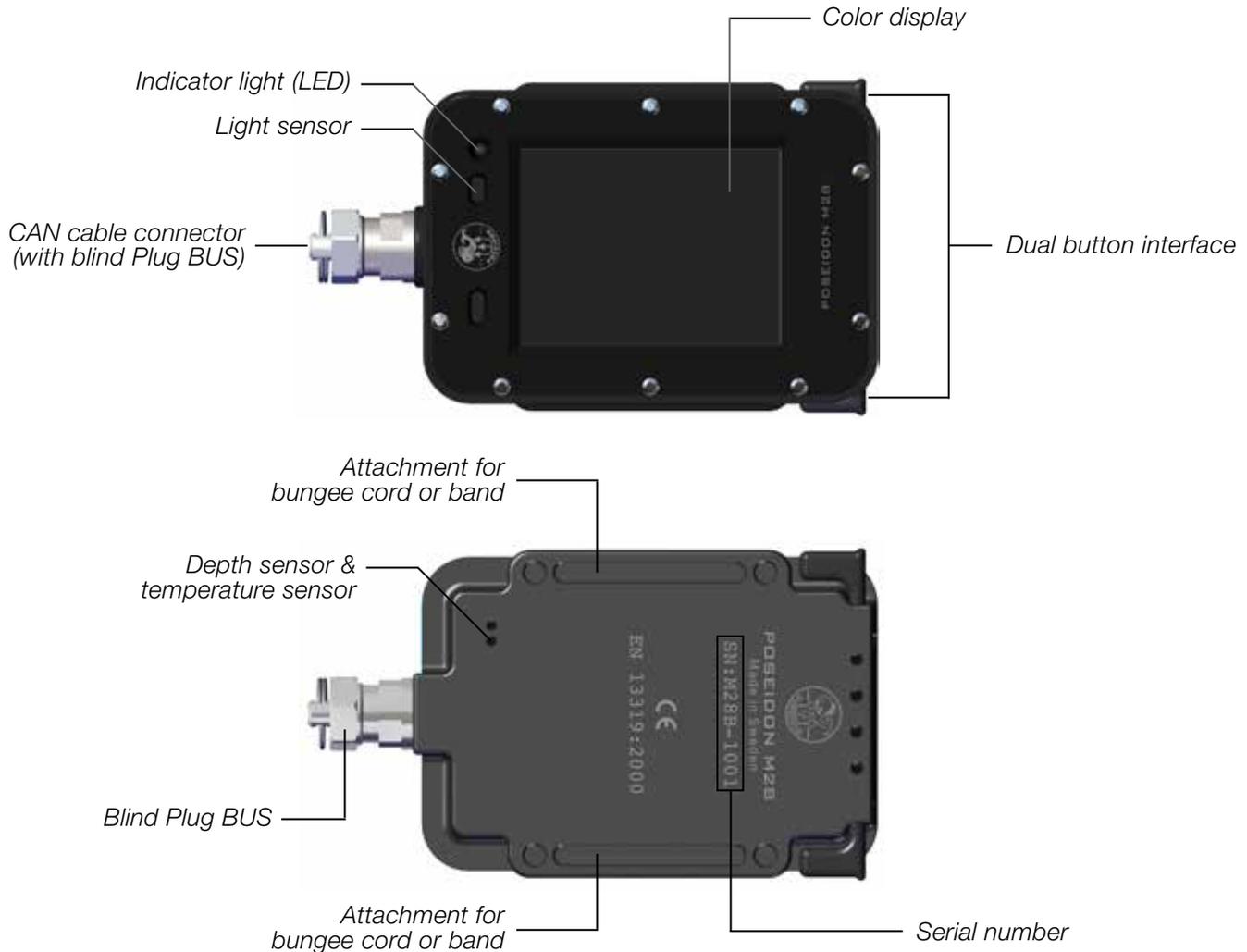
Box content:

- M28 computer
- Storage case
- Bungee cord
- Travel pouch
- Charger cable
- Quick reference guide



An overview of the M28

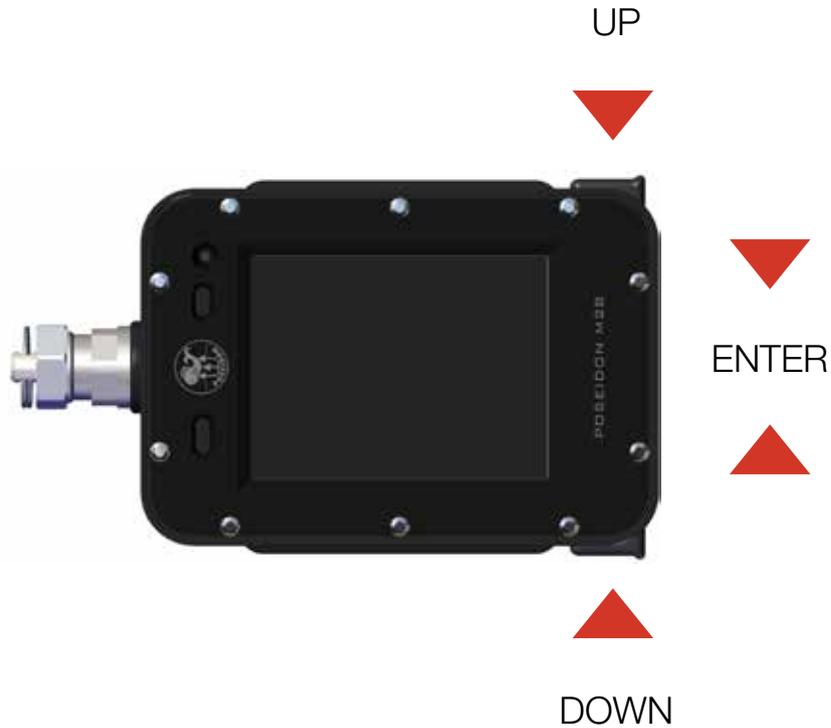
The figure illustrates these locations and the main features of the Poseidon M28. The “back” of the M28 is the side opposite to the display side. Following is a brief description of each of the major components.





Button function

Once the M28 is fully powered up, it is ready to use. To operate and access functions, use the two buttons. The interface is very intuitive to use and is described in the figure below. Press both buttons simultaneously to enter the menu system, then scroll up or down and press both buttons simultaneously again to select the highlighted option. After 30 seconds of inactivity, the M28 dismisses the menu and returns to the previous screen.





First start-up

To start the M28 press both buttons simultaneously



Once the M28 has been started, the indicator light will flash green to indicate that the M28 computer is turning on. This will be followed by a start-up screen with a visible Poseidon logo. Please note that the time to visible start-up screen can vary in length. After a few seconds this screen will be replaced by the Dive app.



DANGER:

Do not attempt to conduct a dive until the system has successfully completed its start up procedure. Diving in spite of a failed start up is extremely dangerous, and could lead to serious injury or death.



Monitoring the Display

Most of the information concerning the status of the dive and various parameters is communicated to the diver via the Display. It consists of a 2,8" TFT color QVGA screen, and provides the diver with important information concerning sensor readings, system messages, decompression status, and other data during the course of the dive. It is extremely important that all Poseidon M28 divers understand how to read the information contained in the Display, particularly concerning various alarm conditions. Before even turning the Poseidon M28 on, it is useful to understand the general layout of the Display, and the logic behind how the information is organized.



DANGER:

If the Display screen is ever blank or freezes during a dive, immediately commence an abort to the surface.

Failure to do so could lead to serious injury or death.



ENTER

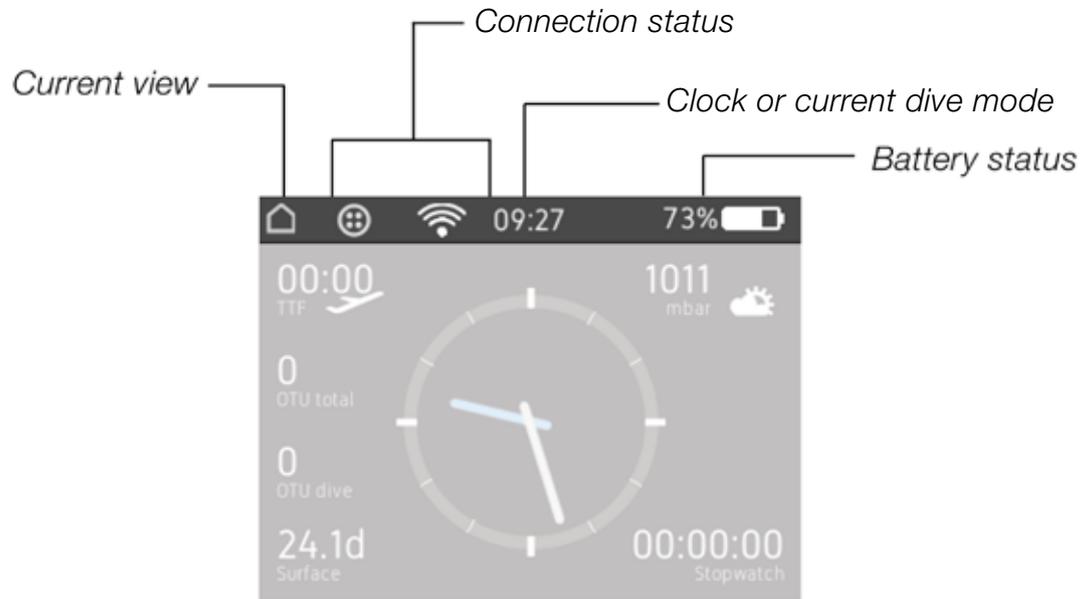


On the following pages the various application modes will be discussed, as well as the menu structure. The “Dive” app is the initial app after start up. This app is automatically visible after an initial safety message that can be confirmed by pressing any of the two buttons.



Top bar

The top bar is visible in all apps and indicates the selected app, connecting status, clock and status of the battery.

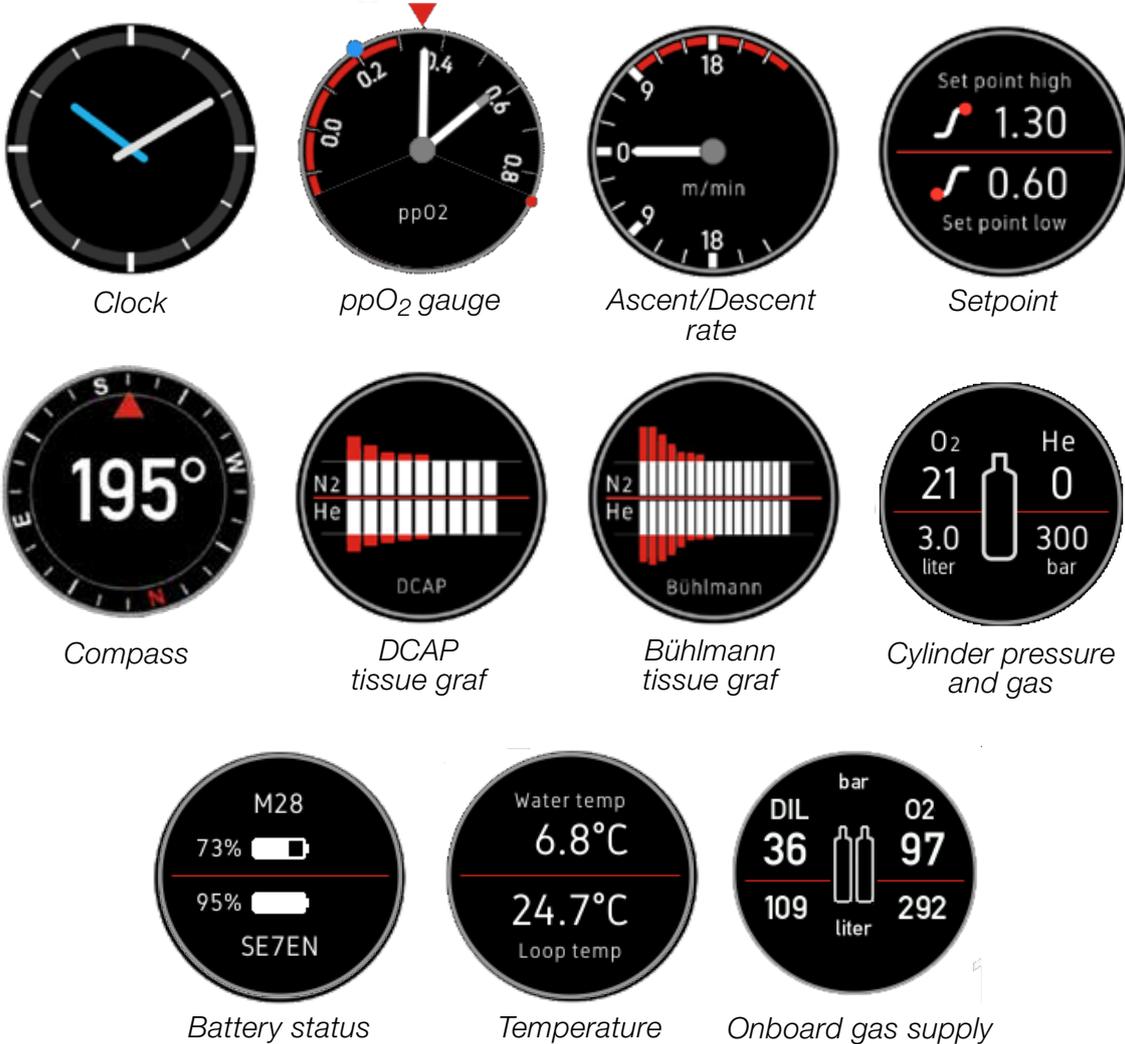




Center area



The M28 gives the diver the option to select what information that shall be displayed in the center area. You can cycle through the available center area content using the up or down key. The available content options varies with the selected App and Dive mode.





Clock. Displays the same time and time zone as the Top Bar. Adjustments of the clock's time are made in settings.



ppO₂ gauge. Shows one or more ppO₂ NEEDLES depending on the number of oxygen sensors connected. Long white needle for the main sensor, gray tip for secondary sensor, blue tip for the third sensor. The setpoint scale rotates such that the current setpoint value is always below the red arrow marker at the top and always pointing up towards the red arrow marker on the top. This means that when the setpoint is changed the setpoint scale will rotate to reflect the change. This will help the diver to quickly understand if the ppO₂ of the gas in the breathing loop is too high or too low at the current depth. The BLUE DOT indicates the oxygen content of the diluent gas tank, while the RED DOT indicates the content of the oxygen gas tank.

This information is useful to a technical diver when performing a loop flush.



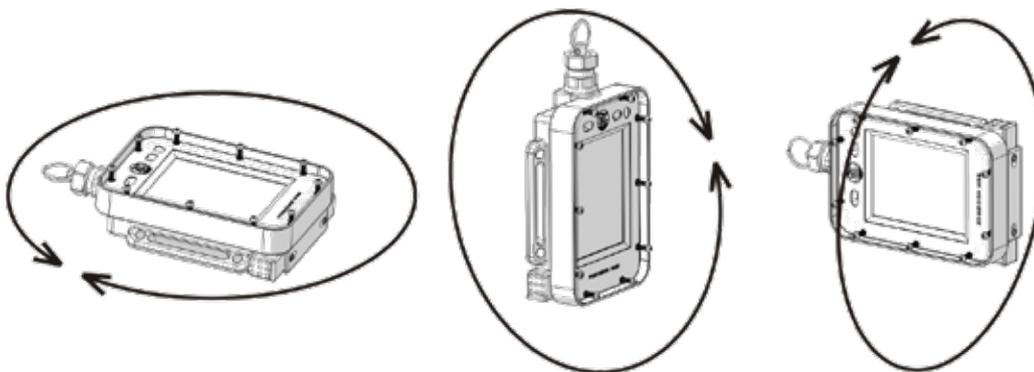
Ascent/Descent rate. Shows Ascent and Descent rate per minute. Unit (m/min or ft/min) is configured in Settings / Depth unit. Ascent rate alarm will start when Ascent speed is higher than 9 meters/minute. There is no descent rate alarm, but remember that ppO₂ in the gas will change when depth is changing.



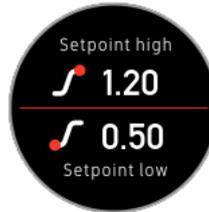
Compass. Displays compass heading.
The compass is tilt independent.



This symbol appears when the compass is not calibrated. Calibrate by rotating the computer slowly in all directions illustrated by the figures below until the symbol disappears.



This symbol indicates that the compass is exposed to ambient stress field and can be misleading.



Setpoint which are used by SE7EN and the M28 to determine the sliding setpoint at the current depth. Setpoint low and Setpoint high can be reconfigured from the Dive app menu in SE7EN, CPOD and Setpoint dive mode.



DCAP or Bühlmann tissue value graph.

Indicates the gas load of the tissues used in the decompression model. Bars representing gas load in fast tissues on the left side and slow on the right. Nitrogen (N₂) is the upper part of the graph growing upwards, while helium (He) is the lower part of the graph, growing downwards. The intent of this graph is to give an overview of the current gas load for the tissues in the decompression model.



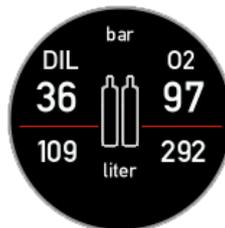
Cylinder pressure and gas. Displays the configuration of the currently selected gas tank in terms of tank volume, tank pressure rating, oxygen fraction and helium fraction. This center view is automatically selected when switching gases, changing from closed circuit (CC) mode to open circuit (OC) mode on SE7EN or when activating bailout in Setpoint mode.

In SE7EN dive mode the currently selected gas tank is the diluent tank when in closed circuit (CC) mode or the selected bailout gas (by default the onboard diluent gas, that is AIR by default) when in open circuit (OC) mode.

In Setpoint dive mode the currently selected gas tank is the currently selected CC gas when in closed circuit (CC) mode or the currently selected OC gas when in bailout is active.

In OC dive mode the currently selected gas configuration is displayed.

Units used for pressure and volume can be configured in Settings.



Onboard gas supply. Displays the current cylinder pressure together with the corresponding gas volume that would be available at one bar environmental pressure for the SE7EN onboard oxygen cylinder and the SE7EN onboard diluent cylinder.



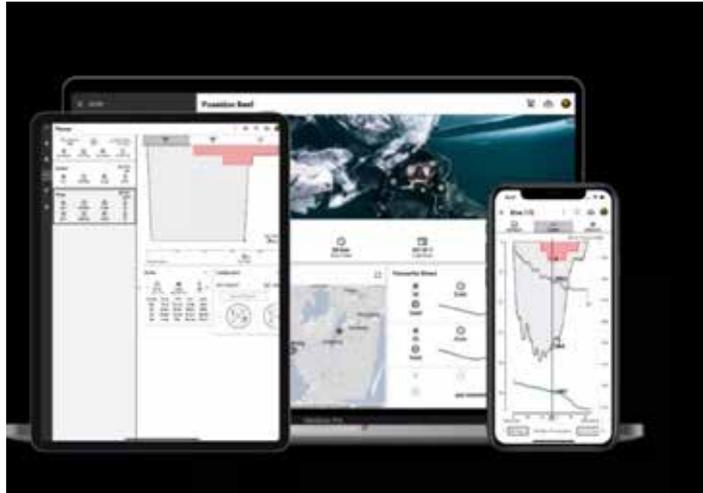
Battery status. Displays the battery status (% of capacity when the battery is fully charged). If a SE7EN is connected, the M28 also displays the SE7EN battery status. The battery icon in the Top Bar always shows the battery status for the M28.



Temperature. Displays the current water temperature when you dive. If SE7EN is connected also displays the temperature in your breathing loop. The unit (°C or °F) can be configured in Settings / Temperature unit.



The Reef app



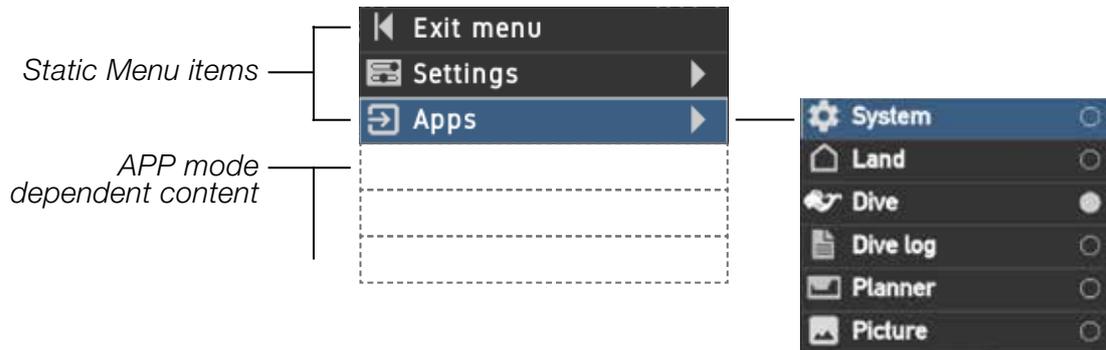
The Poseidon Reef app is a state-of-the-art complement to your M28 dive computer that allows you to plan dives, download and view dive logs, upgrade firmware and more. The Reef app is available for Android, iOS*, MacOS and Windows, and can be downloaded from www.poseidon.com/reef.

** The iOS version of Reef app cannot connect to SE7EN+ because of iOS limitations on Bluetooth communication.*



Chapter 2 The menu system

Most of the features and functionality of the M28 are accessed through the menu system. To activate the menu system, simply press both buttons simultaneously. The menu now becomes visible, the top three menu items are always the same, starting with “Exit menu” that takes you back to the current application screen “Settings” that makes it quick and easy to access key settings and “Apps” that takes you into the various functions of the M28 shown in figure below. The content below the “Apps” menu item is always related to the App that you currently use. In this example having the Land app activated the menu will only show the Stopwatch function. In the following Apps sections we will discuss the application specific content.



Press enter to activate the menu,
scroll up or down and press enter to select.

If no menu item has been selected within 30 seconds,
the menu is closed automatically.

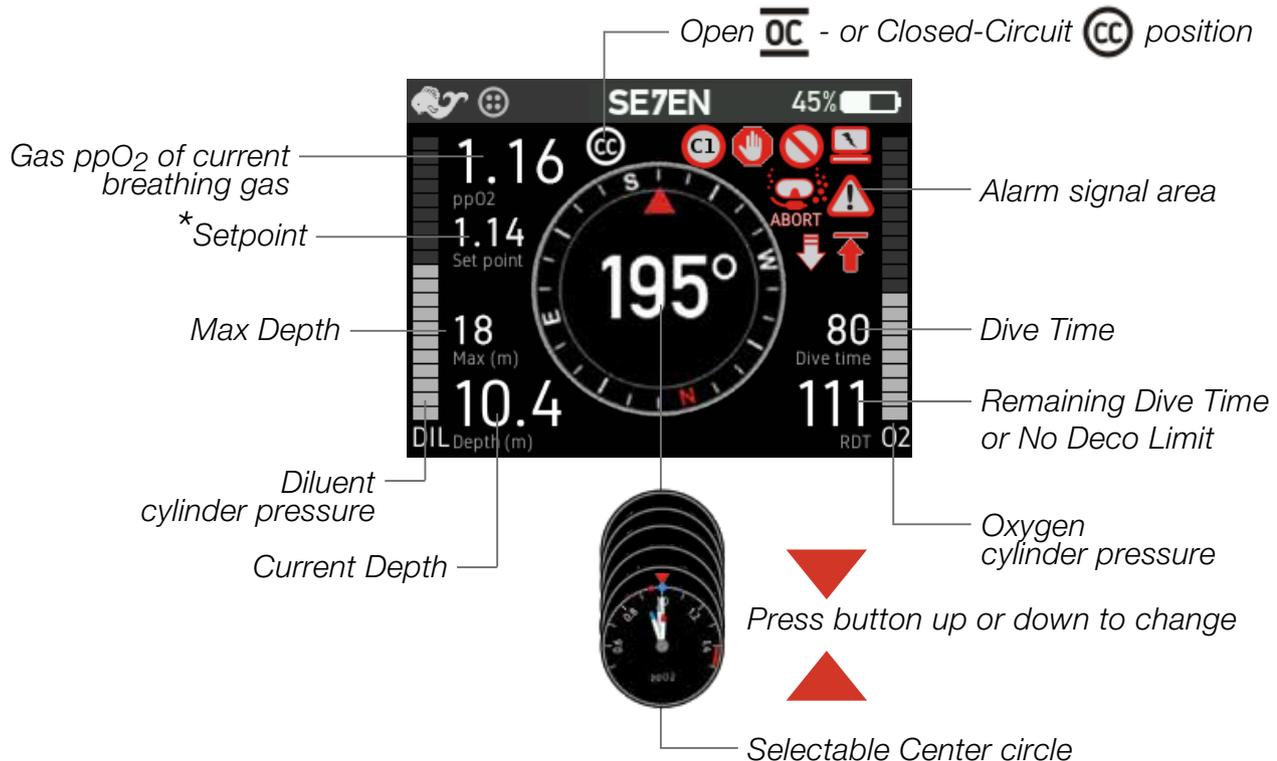


Dive app



This section explains the various areas and symbols shown in the display when the Dive app is selected.

This page explains the display content in the various modes except the GAUGE mode which will be explained last in the dive view chapter.



* In SE7EN dive mode the ppO_2 of the breathing loop is displayed while in closed circuit (CC) mode and the ppO_2 of the selected OC gas at the current depth is selected while in open circuit (OC) mode.

In Setpoint dive mode the ppO_2 of the breathing loop (either measured by the connected CPOD or nominal according to setpoint settings) is displayed while in CC mode and the ppO_2 of the selected OC gas at the current depth is selected while in bailout mode.

In OC dive mode the ppO_2 of the selected gas at the current depth is displayed.



Battery status for the M28 battery.



Battery status can be displayed in the Center area for multiple devices simultaneously.

At the upper right-hand corner of the screen the current state of charge for the M28 battery is displayed together with an icon that visually reflects the M28 battery's state of charge. In case the M28 battery has a low state of charge or there is a problem reading battery data from the M28 battery, the battery symbol will flash, and the battery center view will be automatically selected. If using the M28 together with a SE7EN, the battery symbol in the upper right-hand corner still only reflects the M28 battery status but will flash in case the SE7EN battery state of charge is low or if data cannot be read from the SE7EN battery. Likewise, the battery center view will be automatically selected in case the SE7EN battery has low state of charge or if data from it cannot be read.



Text message box



GAS too LOW
pO₂ 0.16

GAS too HIGH
pO₂ 2.36

In some situations text information is displayed in an area in the center of the lower screen of the Dive app. The information relates to:

1. ppO₂ of selected gas outside limits
2. Disconnected device
3. Reconnected device
4. Decompression stop
5. Firmware mismatch or Firmware update process
6. Pre-breathe (when used with SE7EN)

Warning! The gas selected in OC or Bailout mode has too low partial pressure of oxygen (ppO₂) to be breathable. There is also an alarm if the ppO₂ is too high to breathe.

SE7EN
disconnected

HUD
disconnected

This type of message is displayed when the M28 detects that connection to a device is lost, see Connection status alarms for more information.

HUD
reconnected

This type of message is displayed when the M28 detects a device that has previously been disconnected, see Connection status alarms for more information.



FW mismatch
SE7EN

The firmware in the connected unit is not matching the version used in the M28 unit. Update the firmware from the M28 by selecting the menu “Firmware update” located in the end of the dive menu list.

6
Ceiling (m)

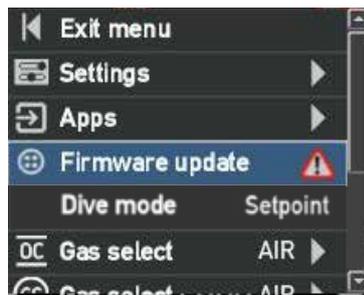
Ceiling information with depth of the current decompression stop.

FW update
HUD

Information that a firmware update is in progress on the bus, but is not issued from the M28 unit.

300
Pre Breathe

Pre-breathe with countdown in seconds. For more information about pre-breathe, see the Rebreather manual.



From the menu list, select the “Firmware update” to perform a firmware update of the connected devices.



When the user has selected to update firmware this screen will appear and inform of the firmware update progress status. Wait until it is completed.



OPEN CIRCUIT (OC) MODE MENU

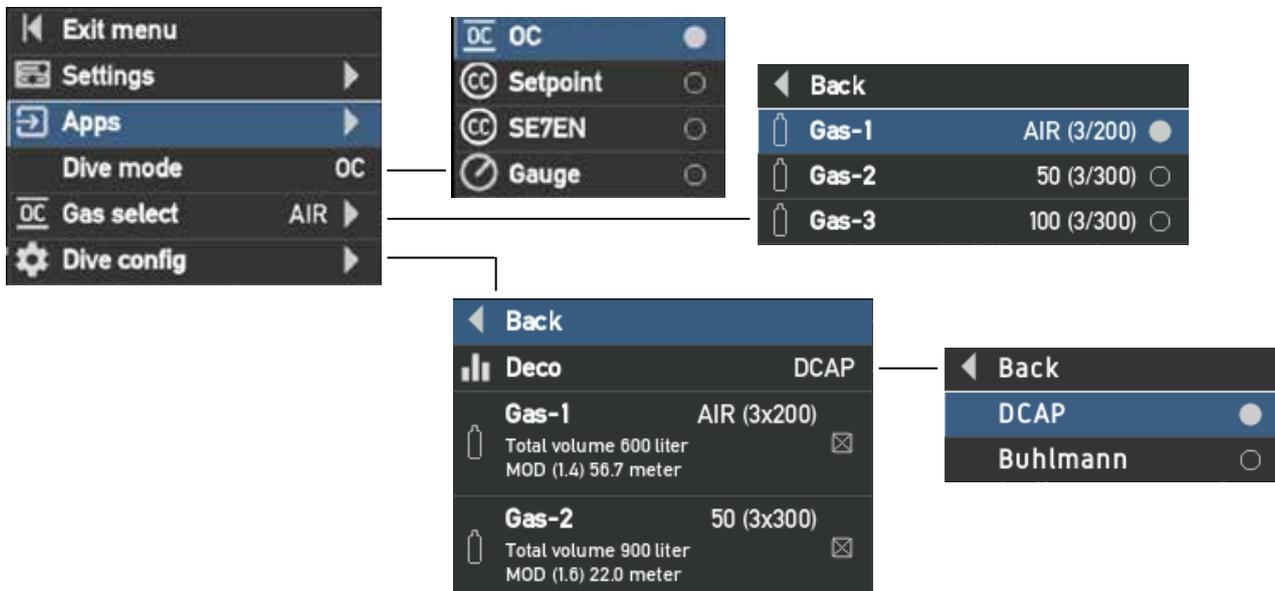
The M28 computer contains a powerful Open Circuit dive mode that handles decompression and multiple gases. To select the OC mode, press both buttons to enter the menu system. Select Apps and then further Dive.

Once in Dive, select Dive mode and OC. The computer is now set into OC mode.

The system can be configured to use either DCAP or Bühlmann ZHL16C with gradient factors (GF) as decompression algorithm. The computer can be used with multiple gases and can handle gas changes while diving.

Up to eight different gases can be configured.

Below you can see the OC mode menu structure.





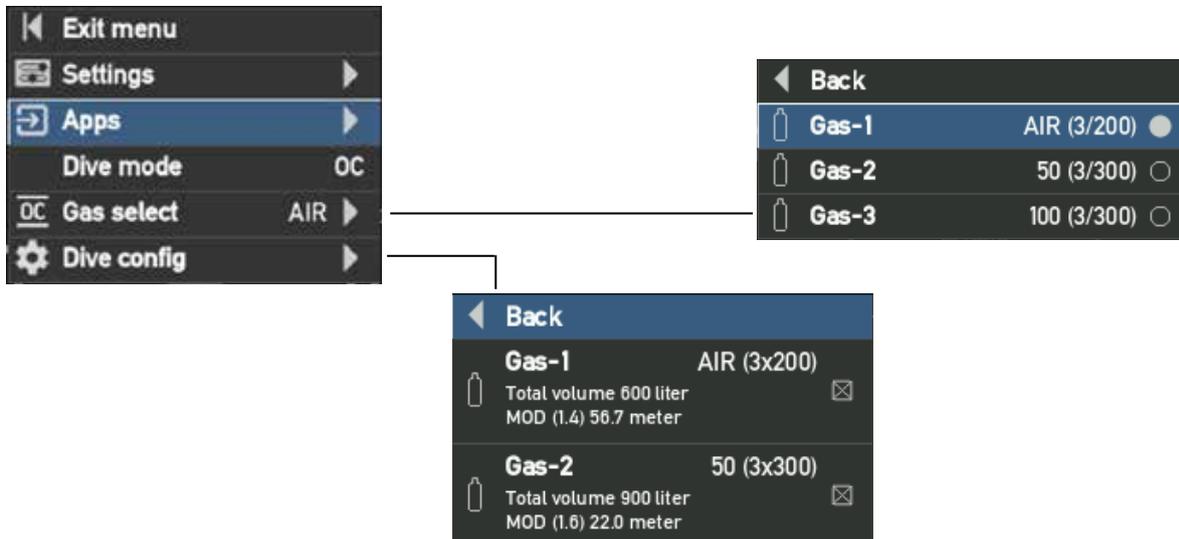
OPEN CIRCUIT (OC) MODE AFTER DIVE START

Current view symbol



After “Dive start”, Current view symbol flashes to indicate the active dive as long as it is in progress.

The menus that are relevant for the current dive mode are shown after “Dive Start”.





CONFIGURING GASES IN OC MODE

To configure the gases enter the menu system in OC mode by pressing both buttons. Select “Dive config”. In the menu there are eight gas configurations named Gas-1 to Gas-8. Each of the gas configurations can be individually setup in terms of FO₂, FHe, cylinder volume, maximum cylinder pressure and the ppO₂ limit used to determine MOD. Each gas configuration can also be enabled or disabled. Select enable to make the gas available in the Gas select list.



WARNING:
ONLY ENABLE GASES YOU ARE CARRYING ON THE DIVE.

GAS SELECTION IN OC MODE

While diving, the current breathing gas used can be changed in the Gas select menu. Once you select the function the previously configured and enabled gases will be visible. By using the buttons you can now select the gas that you want to use as your breathing gas by pressing both buttons.

DECOMPRESSION MODEL SELECTION

As previously mentioned the M28 computer is equipped with two different decompression algorithms; DCAP and Bühlmann ZHL16C. To select the algorithm to use, enter the Dive config menu and select Deco. Once in the Deco menu you can either select DCAP or Bühlmann. If you select Bühlmann, the “Gradient Factors (GF)” will be visible in the Dive config menu. To alter the gradient factor select “GF settings” and set “GF low” and “GF high” value. The default values are 40 for “GF low” and 70 for “GF high” (i.e 40/70).



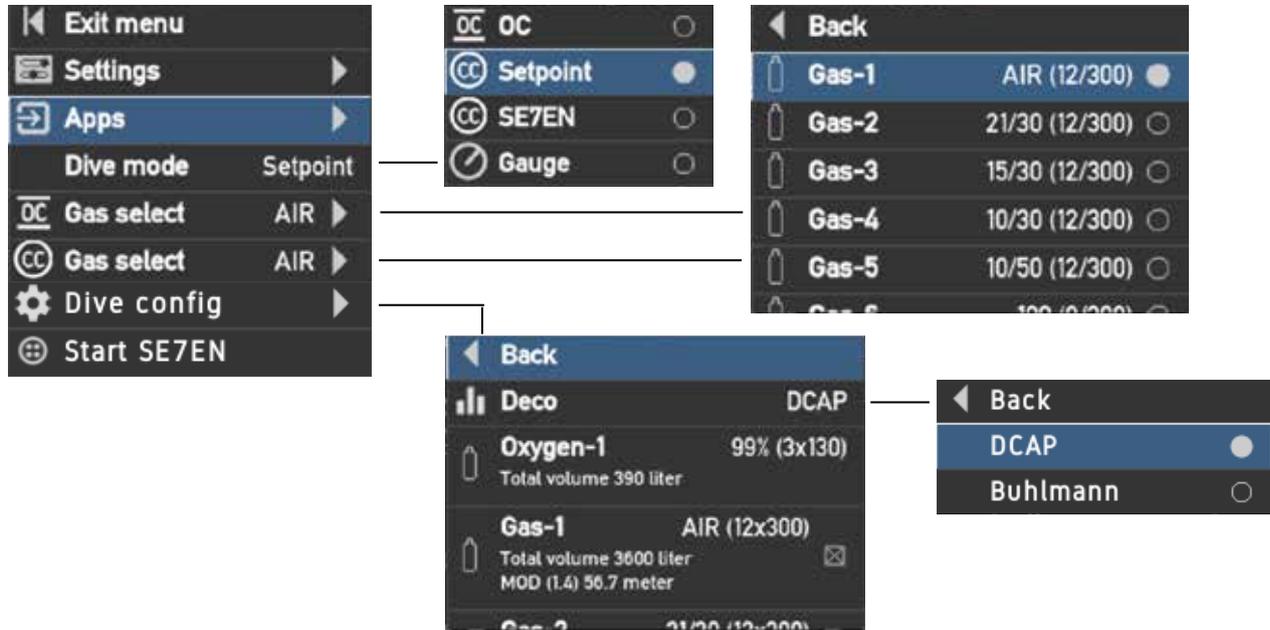
DANGER:
Only divers with specific knowledge about the GF factor influence of the decompression algorithm shall use this functionality.



SETPOINT AND CPOD MODE



In Setpoint mode the M28 will assume that the diver breathes a gas mix with a ppO_2 equal to the setpoint at the current depth and use that as input to the decompression model.



If a CPOD with an oxygen sensor is connected and mounted on the loop the decompression model will use the measured ppO_2 as input and the dive mode will be referred to as CPOD instead of Setpoint.

When Bailout is set to ACTIVE in Setpoint or CPOD mode, the M28 will calculate the ppO_2 in the bailout OC breathing gas based on the configured FO₂ in the selected bailout OC gas and the current depth and use that as input to the decompression model.



WARNING:

In Setpoint and CPOD mode the decompression model is using the values entered by the diver. False values used could lead to serious injury or death.



SETPOINT AND CPOD MODE AFTER DIVE START

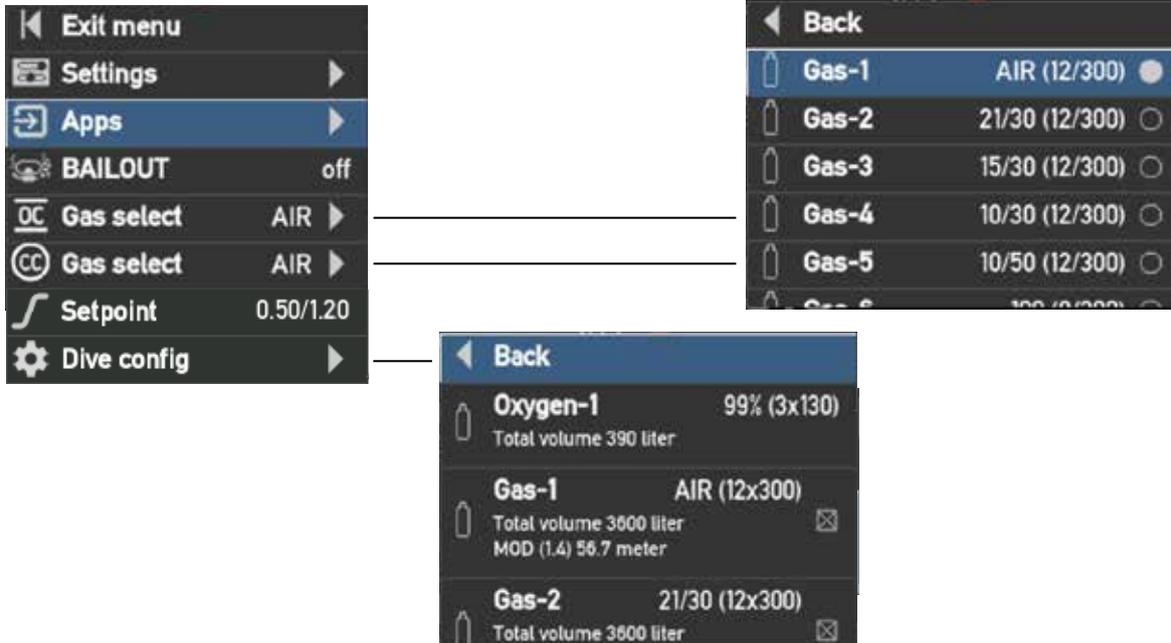


Current view symbol



After “Dive start”, The Current view symbol flashes to indicate the active dive as long as it is in progress.

After “Dive Start” the menu will only contain content relevant to the current dive mode during dive.



CONFIGURING GASES IN SETPOINT (CC) MODE

To configure the gases enter the menu system in Setpoint mode by pressing both buttons. Select “Dive config”. In the menu there is one gas configurations for oxygen and eight configurations for other gases; the configuration are



named Oxygen-1 and Gas-1 to Gas-8. Each of the gas configurations can be individually setup in terms of FO₂, FHe (not applicable for Oxygen-1), cylinder volume, maximum cylinder pressure and the ppO₂ limit used to determine MOD (not applicable for Oxygen-1). Each gas configuration can also be enabled or disabled. Select enable to make the gas available in the Gas select list.



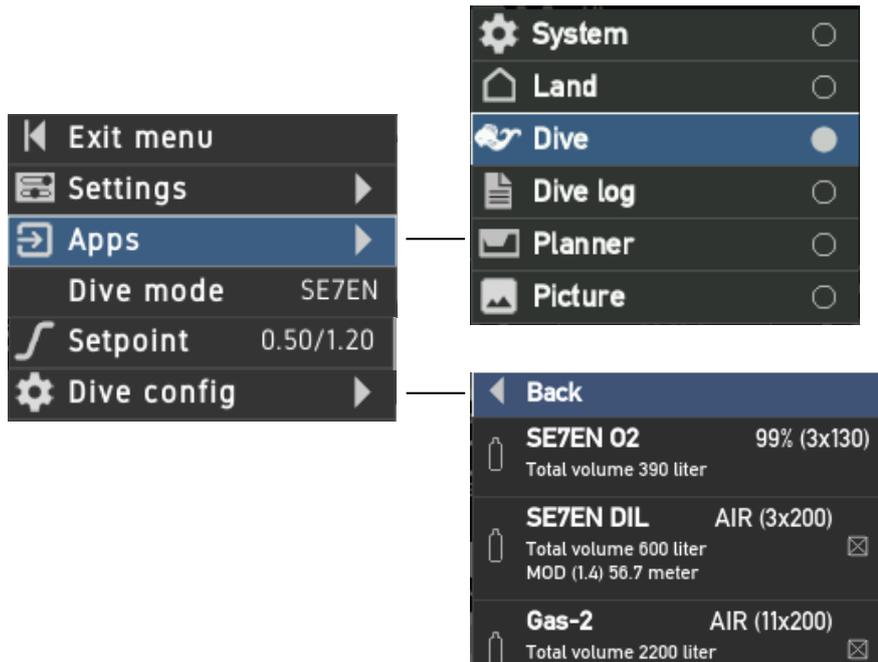


SE7EN MODE MENU



Please refer to the comprehensive Appendix 3 of the SE7EN Manual. The figure below shows the menu system related to the M28 SE7EN mode.

Only available when SE7EN is connected.





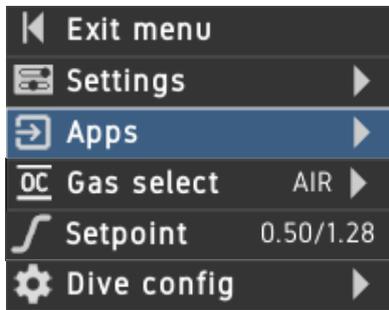
SE7EN CLOSED CIRCUIT (CC) MODE AFTER DIVE START

Current view symbol

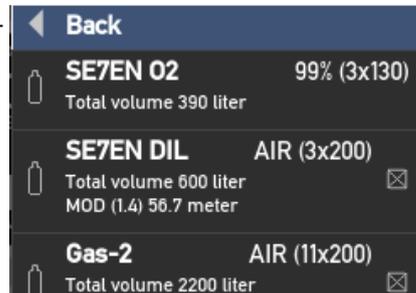
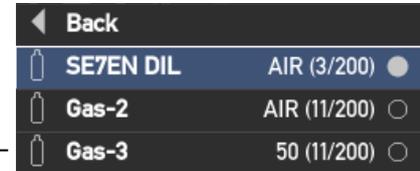


After “Dive start”, Current view symbol flashes to indicate the active dive as long as it is in progress.

After “Dive Start” shows the menus that are relevant for the current dive mode.



This option is only available when SE7EN is in Bailout mode



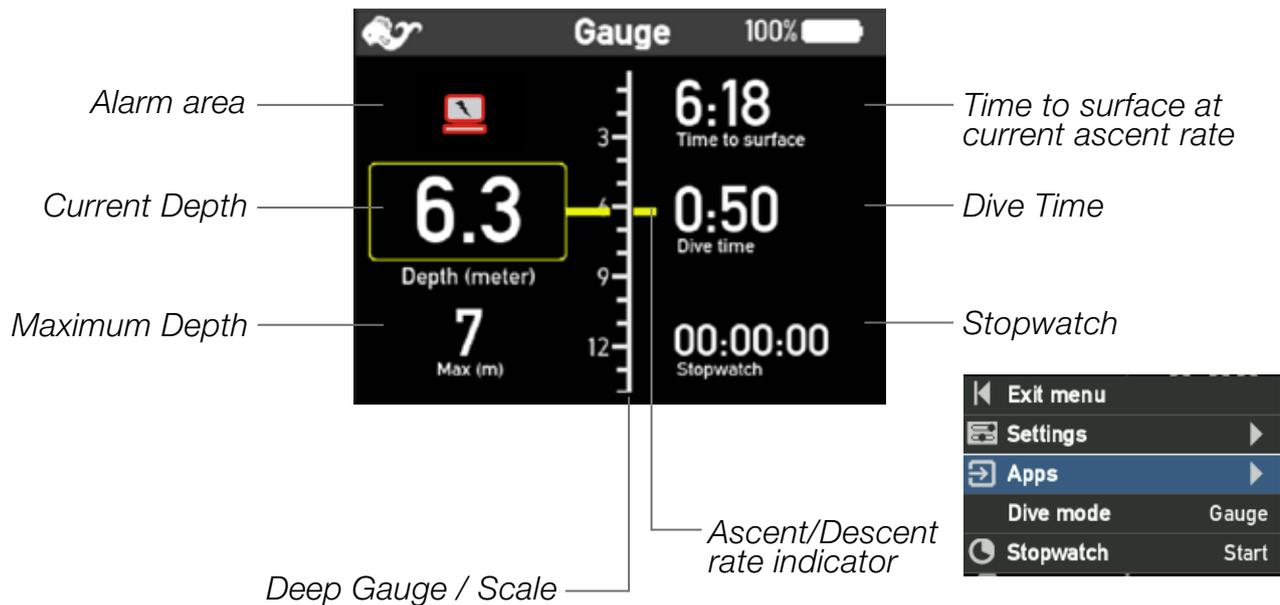


GAUGE MODE



The Gauge mode will give the diver depth and time information, similar to a bottom timer. The stopwatch functionality is identical to Land mode.

NOTE! The decompression algorithm is disabled in this mode.

**WARNING:**

The decompression algorithm is disabled in GAUGE MODE.

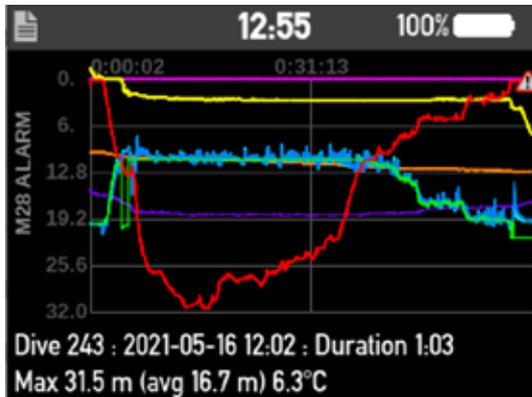


Dive log app



The M28 contains a log viewer where you can look at your recent dives. Each log has an index number, dive time and max depth displayed below the plotted curves.

Use the buttons on the M28 to change between the stored dive log.



Press button up or down to change to the next or previous dive log



Following curves are plotted:

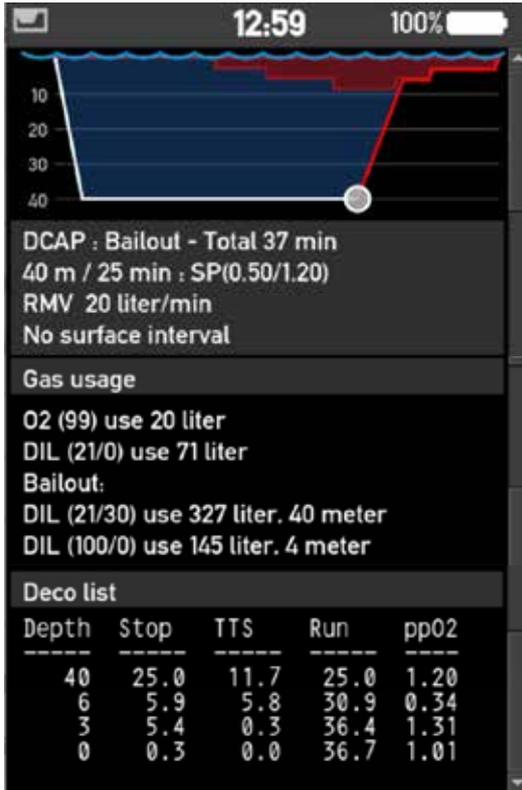
- █ - Depth
- █ - Setpoint
- █ - Primary ppO₂
- █ - Secondary ppO₂
- █ - HP DIL
- █ - HP O₂
- █ - Water temperature
- █ - Decompression ceiling
- █ - Primary CPOD ppO₂
- █ - Secondary CPOD ppO₂

Alarms are indicated with an alert icon on the depth curve.

Use REEF app to read description of Alarms.



Planner app



| | |
|------------------|--------------|
| Exit menu | |
| Settings | |
| Apps | |
| OC-Bailout | ON |
| Dive depth | 40 m |
| Dive time | 25 min |
| Surface interval | 0 min |
| RMV | 20 liter/min |
| Last stop | 3 m |

The Planner app is a tool intended for a last-minute check just before the dive or for checking your next (repeated) dive at the dive site.

The Planner uses your current decompression status (tissue tensions) registered in the M28 together with your current settings, enabled gases in your gas configuration and the current barometric pressure. RMV (Respiratory Minute Volume) is synchronized from SE7EN when SE7EN is connected to the M28.

In the Planner you select your planned maximum Dive depth, Dive time (bottom time + descent time) and Surface interval, if any. The Planner will then calculate



your dive profile and present it visually together with a list of depth and time for each decompression stop, plus the calculated gas usage. Scroll down to see the Deco list and the calculated gas usage.

If you plan a dive with no decompression stops, ensure that no decompression stops are shown for your planned dive. If decompression stops are shown, re-plan your dive by adjusting depth and/or time and/or surface interval.

When planning a rebreather dive you should always check the calculated gas usage in a bailout scenario. To do this, set OC-bailout to ON. The Planner will then calculate decompression stops and the gas usage for the scenario where the ascent is made in bailout mode after the planned Dive time. During the calculated ascent in bailout mode, the enabled bailout gases will be used according to their MOD. Don't forget to add 50% conservatism to the calculated gas volumes in case of any mishaps during bailout.

For more comprehensive dive planning we recommend you to download our Reef app for iOS/Android. This is also a Dive Logging app for all your dives. Here you can analyze your dive, add pictures and text from the dive sites.

**WARNING:**

The Planner does not warn for high or low ppO₂, excessive oxygen exposure (OTU above limit), narcotic effect of breathing gas, breathing gas density, isobaric counter diffusion nor gas consumption beyond the available gas supply volume in planned dives.

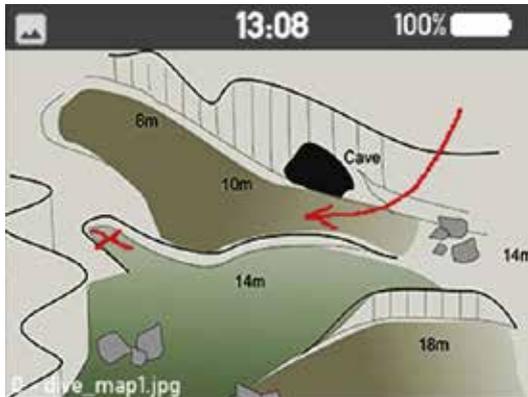


Picture app



The M28 includes a picture app that allows you to view stored pictures and other information. You can upload or remove pictures from a personal computer or mobile phone via the web interface when M28 is connected by Wi-Fi.

Press up or down button to view the next or previous picture.



Press button up or down to view the next or previous picture



This option shows only in Dive Mode and at warning

To upload or remove a picture, follow the steps described under Chapter 4.



System app



The System app provides useful information concerning the M28 computer and connected devices, if any. The information available in the System app might be necessary to provide when reporting problems to Poseidon's customer support.



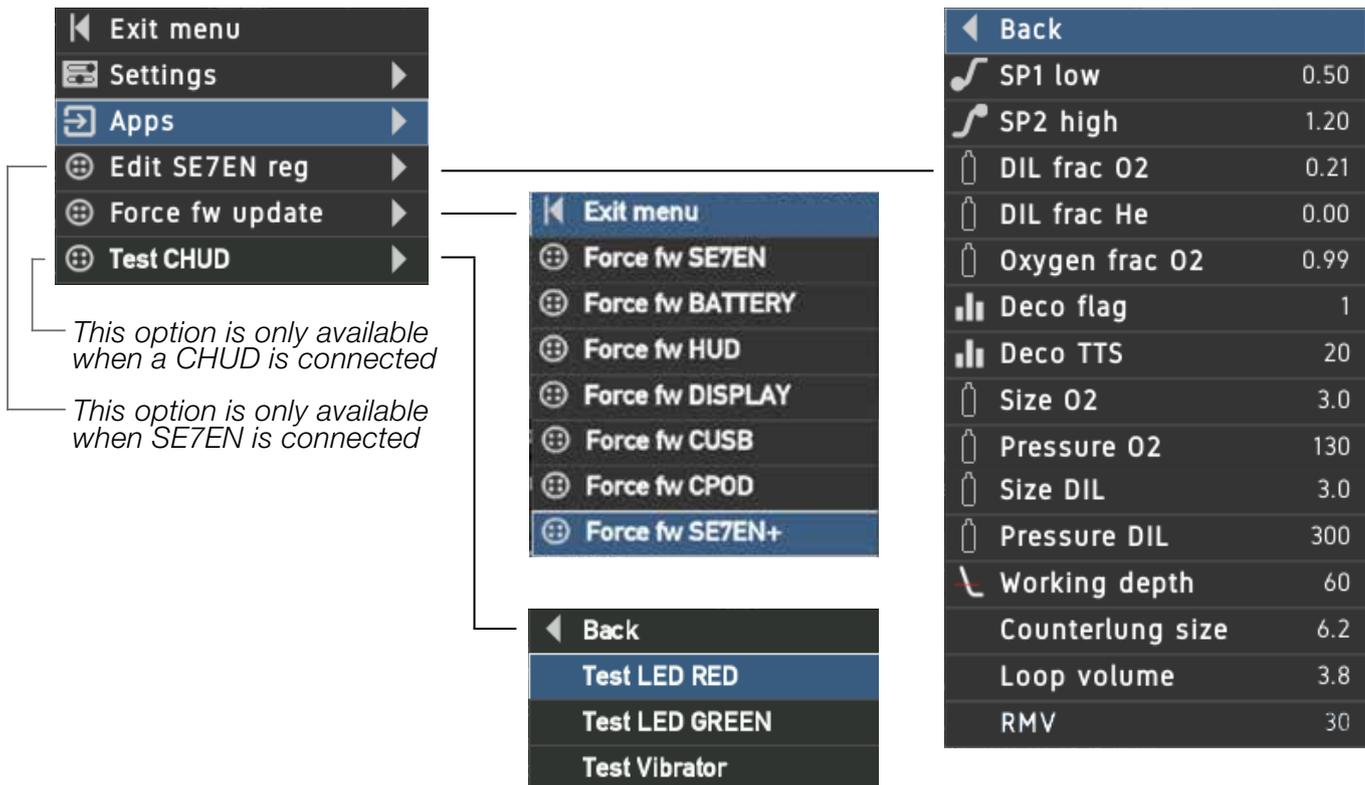
Under 'System' the following information can be found:

- Current system time adjusted with selected time zone value.
- Wi-Fi status
- OS, APP and CAN firmware version
- Bootloader versions
- Manufacturing ID
- UUID, a universally unique identifier that identifies the individual M28 hardware.
- Sensor information
- Available firmware version for SE7EN update
- CAN units



System app - menu tree

The figure below illustrates the menu tree underneath the “System” app. The various functions in the menu allow you to force update of firmware in other connected Poseidon products and edit registers in connected units.





Force fw update



The force firmware update should be used with great caution.

Under normal circumstances the M28 detects firmware version mismatch in a connected device and allows a firmware update for the device to be started from the menu (see page 39). In a situation where a firmware update fails, the device might get stuck in firmware installation mode and fail to start properly. The device will therefore not be detected by the M28 and the firmware update for that device will not be available in the menu. Forced fw update is only intended to resolve this or similar situations.

Use the Force fw update feature only if a previous firmware update attempt has failed and/or one of the components is not functioning properly.

Update CAN enabled Poseidon products

To access and use the forced firmware update function use the buttons and select the “System” app. Once in the app press both buttons to access the system menu. Select “Force fw update”. You can now see a number of options, they are all listed and explained below:

Force fw SE7EN

Select this option if you want to update the firmware of the E-Module in the SE7EN.

Force fw BATTERY

Select this option if you want to update the firmware in the SE7EN battery module.

**☹ Force fw HUD**

Select this option if you want to update the firmware in the SE7EN HUD.

☹ Force fw DISPLAY

Select this option if you want to update the firmware in the SE7EN Paddle DISPLAY (Black/white LCD type).

☹ Force fw CUSB

Select this option if you want to update the firmware in the M28 charger cable. Please note that the charger cable needs to be connected to a USB power source when performing the update. Do not connect the CUSB to the SE7EN at any time.

☹ Force fw CPOD

Select this option if you want to update the firmware in the CPOD.

Once you select to update a certain part of the system a firmware update window will be visible on the M28 so you can follow the update procedure. If you want to abort an ongoing update procedure, simply press both buttons on the M28.

☹ Force fw SE7EN +

Select this option if you want to update the firmware of the E-Module in the SE7EN+.



Land app



The Land app gives information valuable to the diver after or prior to the dive.

Most of the visible content of the land mode is static but the center icon and stop watch can be used. To change the center view, press the up or down button to cycle between the clock and the two compass views. To use the stopwatch, press both buttons simultaneously and select stopwatch. The stopwatch will now reset and start counting until both buttons are pressed once again and stopwatch is selected.



This option is only available when an alarm is active

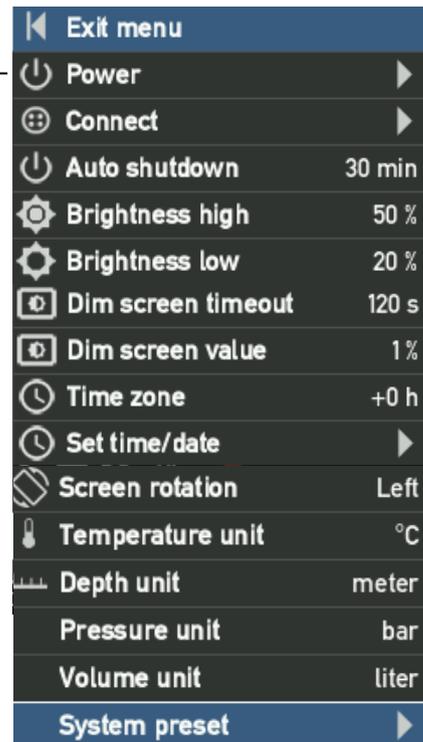
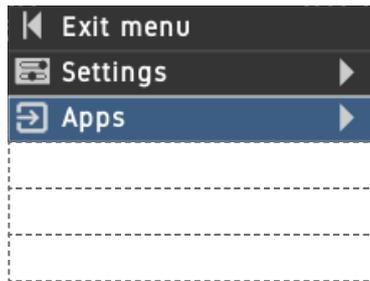


Press button up or down to change

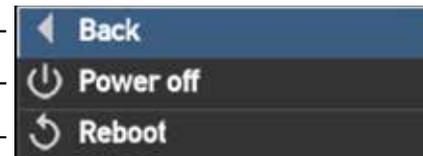
Selectable Center circle



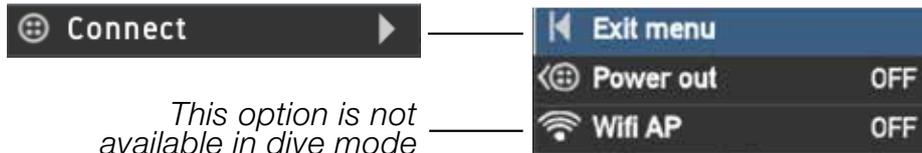
Settings



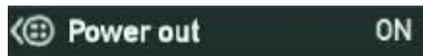
These options are not available in dive mode



The power menu allows you to turn off the M28 or reboot the M28. If the unit does not power off after a 1 minute, it is also possible to enforce a power off by pressing both buttons for more than 8 seconds.



The connect menu is used to connect to external sources such as external sensors, HUD, CPODs and others.



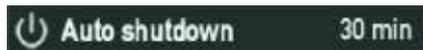
When you connect the M28 to an external sensor or any other device that lacks its own power supply, you need to activate the power output from the M28 to provide power to such a device. Pressing both buttons on this menu item will toggle this feature between OFF (default) and ON. When set to ON, the power icon will appear in the upper bar of the Display. Remember that this will affect the battery life.



To communicate via WLAN to another device, such as a computer or mobile phone, you need to turn on the Wi-Fi AP (Access Point). This function is primarily used when you need to update firmware or when you upload or download data to or from the M28. Pressing both buttons on this menu item will toggle this feature between OFF (default) and ON. When set to ON, the Wi-Fi icon will flash in the upper bar of the Display.

To connect to the M28 through the access point, use your PC/Mac or handheld device and connect to the Wi-Fi network “M28-XXX” where XXX is the unique serial number of your M28. If you are uncertain about your serial number check the backside of the M28 or open the “System” app. The password to the network is “matterhorn”, once connected open a web browser on your PC/Mac or device and type in “http://192.168.7.1” in the browser and you will enter a welcome page from the M28. The browser functionality is discussed in section REF.

Remember that activation of Wi-Fi results in increased power consumption, which causes the battery to discharge quicker (when not connected to a charger).



In case of inactivity, the M28 powers down after the set time to save power. Range 0, 5 .. 60 min where 0 min equals to OFF.



The highest backlight brightness to be used at the highest ambient light level. Remember that a high backlight level results in increased power consumption, which causes the battery to discharge quicker (when not connected to charger).



 Backlight low 10%

The lowest backlight brightness to be used at the lowest ambient light level.

Remember that a high backlight level results in increased power consumption, which causes the battery to discharge quicker (when not connected to charger).

Backlight control

If backlight control is enabled the screen will automatically control the backlight depending on the ambient light. The user can select the low and high backlight level. The ambient light sensor will control the backlight between the High and Low value. Remember that the backlight settings will affect the battery discharge rate.

 Dim screen timeout OFF

If dim screen is enabled, the screen will dim if there is no button activity for the duration of the number of seconds selected. Each button activity will restart the timeout counter to selected value. When selecting the value 0, the function is turned off. The screen will not dim during pre-dive-test view. When the screen has been dimmed, the next button press will restore the screen brightness, but will not otherwise affect the M28.

 Dim screen value 1

The backlight level that the screen will dim to when the timeout value has expired. When dim value 0 is used, the display will turn off completely after the “Dim screen” timeout, and the green LED will make a quick flash every 10 seconds.

 Time zone +1 h

The user can change the timezone relative to UTC time. This will affect the time displayed in the unit.



 **Set time/date** 

Set date/time in local time. Be sure to correctly set the time zone before setting this to the local time.

 **Screen rotation** **Left**

Select the layout of the device and flip the screen 180 degrees for maximum usability. This will help the user select left- or right-handed usage.



 **Temperature unit** **°C**

Switch displayed temperature unit between Celsius (metric) and Fahrenheit (imperial).

 **Depth unit** **Meter**

Switch displayed depth unit between meters (metric) and feet (imperial).

Pressure unit **Bar**

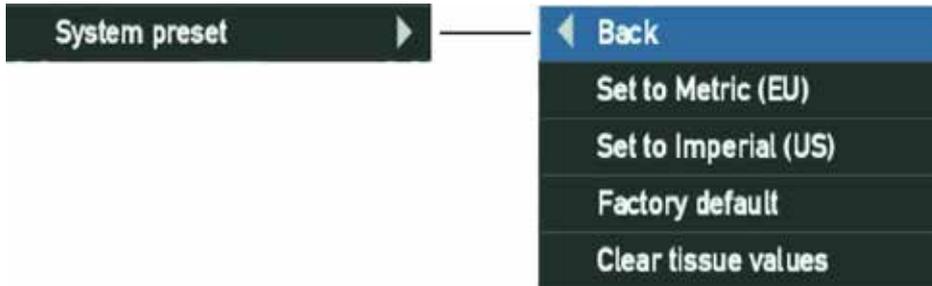
Switch displayed pressure unit between bar (metric) and PSI (imperial).



Volume unit Liter

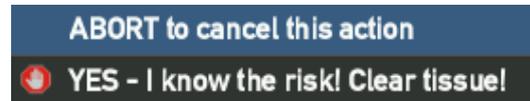
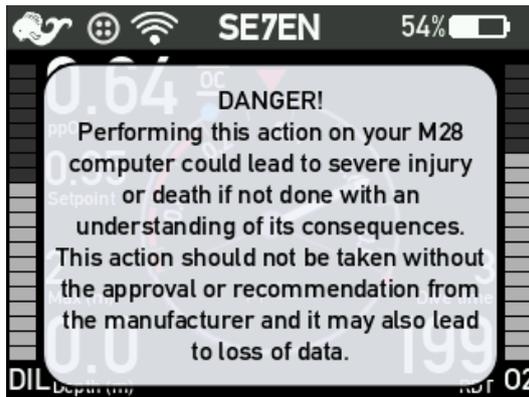


Switch displayed tank volume unit between liter (metric) and cubic feet (imperial).



This is a quick way to set all the unit to be displayed into either Metric (EU) or Imperial (US) units. This will only affect the displayed unit settings. Use the “Factory default” to reset the settings back to factory settings. This will not erase any dive log, redbox log or any pictures, only set the settings back to default.

Clear tissue values resets the decompression model data.



! DANGER:

Resetting tissues on your M28 computer could lead to severe injury or death if not done with an understanding of its consequences. This action should not be taken without the approval or recommendation from the manufacturer and it may also lead to loss of data.



Update device firmware from the M28



Throughout the development of the M28 we have enhanced the functionality of the SE7EN in many ways. One of the features within the M28 makes it possible to update the firmware of the SE7EN from the M28. This might be a handy tool if you have to field replace a part of the SE7EN and experience inconsistent firmware versions within the SE7EN.

Firmware update from Pre-dive test

The firmware control within the M28 is even more sophisticated. If during pre-dive you encounter a fw compatibility test error you can simply press both buttons of the M28, select “fw update” located at the bottom of the Dive app menu. When selecting this function all inconsistent parts of the firmware will be updated. A firmware update window will be visible during this process.

Firmware update of single device (HUD, display, CPOD, CUSB)

This option can be used to update specific parts of the SE7EN or M28 accessories. This function can be used when connected to the SE7EN or when you connect any of the Poseidon products directly to the M28. Before any firmware can be updated the physical product needs to be connected and then the “power out” option needs to be enabled if the connected device lacks battery.

The “power out” function is located in the settings menu. To enable the “power out” function, select “power out” and the CAN connect icon will be visible in the connection status area.



Charging

Once the M28 is connected to a power source through the USB charging cable, the charging symbol will be visible in the upper right corner of the display, and the battery icon will show as green. The M28 is fully charged once the battery icon shows the state of charge as 100% and the battery icon turns white.



Dive log data

The Poseidon M28 automatically creates an extensive dive log every time the system is used during a dive. The information stored in this log will be of significant interest in reconstructing dives and learning about how to improve your diving skills. Examples of the common types of data you can review are, dive time and depth. However, the dive log contains more information. For more comprehensive log analysis we recommend you to download our Reef app. This is also a Dive logging app for all your dives. Here you can analyze your dive, add pictures and text from the dive sites.



Wi-Fi connection

Make sure that your computer or handheld device is equipped with a standard Wi-Fi device. If not, install a Wi-Fi adapter (many inexpensive models are available). Make sure that your Poseidon M28 unit is turned on and that the Wi-Fi is enabled. The M28 is an access point and can be reached through a standard web browser. Once enabled, the Wi-Fi will be enabled until it's turned off. The icon will flash until a device is connected.



Chapter 3 M28 Alarms

Alarm signals

The M28 uses alarm icons to indicate active alarms and to guide the diver in what actions to take. The M28 flashes on-screen numbers related to the active alarms, such as depth or ppO₂. For some alarms the M28 also displays on-screen messages. In addition to visual alarm indication, audible alarm signals can be given from the built-in vibrator and the vibrator in a connected HUD.

When a SE7EN is connected to the M28, the SE7EN will control the M28 screen content equivalent to the classic (“paddle”) display. If SE7EN activates an alarm it will activate alarm icons on the M28 display. More information about SE7EN alarms and how they are displayed on the M28 is provided in Appendix 3 of the SE7EN manual.

The alarm signal area



Alarm signal area

The alarm icons are displayed in the alarm signal area in the upper-right corner of the screen. Under normal circumstances it should be completely blank. It was designed this way so that a quick glance at the screen would be all that is necessary to know whether any alarm conditions are active. A blank field in the upper-right corner of the screen means all systems are functioning properly, and all parameters are working correctly. In most cases the signals will flash when activated to draw attention.



Abort and open circuit alerts



The most important alert symbols on the screen are also the largest: The ABORT and Open-Circuit symbols. Whenever this is displayed, the dive should be immediately terminated. There are two possible abort scenarios, either OC or CC. If accompanied by the Open-Circuit Alert icon (image of a diver's mask, second-stage regulator, a series of bubbles on either side of the diver's face), the diver must immediately terminate the dive and commence a safe ascent to the surface in open-circuit mode. If the Abort icon is displayed alone without the image of the diver's mask the diver must immediately terminate the dive and commence a safe ascent to the surface on closed circuit.

DO NOT DIVE alert



This symbol is the "DO NOT DIVE" Alert, and it indicates that the system is not currently ready to be used for diving.



General alert



The General alert symbol located in the Alarm Signal Area will flash in synchrony with any other parameter(s) on the screen that is/are inappropriate or out of acceptable range. This signal is intended to catch the diver's attention, and prompt the diver to scan the other elements on the screen to see which value(s) is/are also flashing. As long as one of the other displayed values on the Primary Display is flashing, the General Alert symbol will also flash.

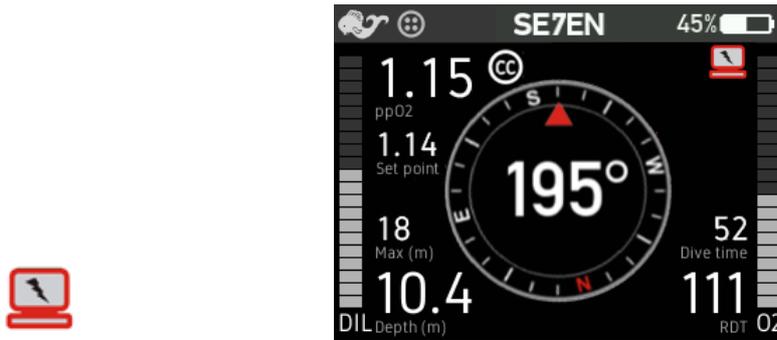
Stop alert



The Stop alert symbol located in the Alarm Signal Area, is displayed if the diver is ascending too rapidly. The appropriate response is to immediately stop ascending, and the diver should maintain the current depth until the symbol disappears.



Electronics alert



The Electronics alert symbol indicates that a problem has been detected with the electronics, such as a cable failure or electronics failure in one of the CAN units.

The specific cause is recorded in the logged data. If the Electronics alert symbol is shown, **ABORT** the dive or **DO NOT DIVE**.

Alarm messages





Some of the alarms in the M28 will display a message (in English) when activated. The alarms that display messages are:

- OC ppO₂ low / high / high (immediate)
- Display disconnected / reconnected
- SE7EN disconnected / reconnected
- HUD disconnected / reconnected
- CPOD disconnected / reconnected
- Firmware mismatch

In case several messages become active at the same time, they will alternate on the screen.

Decompression ceiling alert



The Decompression ceiling alert symbol will flash when the diver has incurred a decompression obligation. The current decompression stop is displayed in a text message.



Descend arrow



In the unlikely event that a diver incurs a decompression obligation (i.e., the Decompression Ceiling Alert is displayed), and the diver then ascends above the depth at which the Decompression Stop Alert is displayed, the Descend arrow will flash. In this situation, simply descend gradually until the Descend arrow no longer flashes, and remain at that depth until the Decompression Stop Alert no longer displays.

Mouthpiece position



Directly to the right of the PO2 value the mouthpiece position is communicated:

- “CC” (mouthpiece is in the Closed Circuit position)
- “OC” (mouthpiece is in the Open-Circuit position)
- “NC” (mouthpiece is not fully in either position), or “UN” (mouthpiece position is unknown).



The difference between “NC” (“no circuit”) and “UN” (“unknown”) depends on whether the mouthpiece is reporting that neither closed-circuit nor open-circuit is currently established (“no circuit”), or whether the mouthpiece is not reporting any position information at all (“unknown”). In the former case, the problem is likely due to the mouthpiece switch being in the wrong position, one or both of the magnets inside the mouthpiece being damaged or corrupted, or a problem with the magnet sensors in the HUD. The latter case would arise if the HUD was unable to communicate reliably with the M28 or report that the mouthpiece is in both open and closed position at the same time. In any case, if the displayed value of the mouthpiece position is not what it should be, first check the actual position of the mouthpiece, make sure it is firmly and completely in one position or the other and attempt to wiggle the HUD slightly.



Dive alarms

Dive alarms is the group of alarms that relate to use of the M28, in other words diving. The alarm conditions are however monitored even if no dive is in progress. The table below lists the dive alarms of the M28 together with their activation and deactivation conditions.

| Alarm | Activation condition | Deactivation condition |
|--|---|--|
| Measured ppO_2 low <i>Only applicable in CPOD dive mode</i> | Measured $ppO_2 < \text{limit}$. The limit is initially 0.16 bar and is raised to 0.27 bar when ppO_2 exceeds 0.25 bar continuously for more than 30 seconds or when Dive start is detected. The limit is reset when the CPOD is disconnected and the CPOD disconnected alarm is reset and when the M28 is power on. | Measured $ppO_2 > \text{limit}$ (see activation criteria for information about the limit) |
| Measured ppO_2 high <i>Only applicable in CPOD dive mode</i> | Measured $PO_2 > 1.6 \text{ bar}$ continuously for more than 60 seconds | Measured $ppO_2 < 1.6 \text{ bar}$ |
| Measured ppO_2 high (immediate) <i>Only applicable in CPOD dive mode.</i> | Measured $PO_2 > 1.8 \text{ bar}$ | Measured $ppO_2 < 1.8 \text{ bar}$ |
| PO_2 deviation <i>Only applicable in CPOD dive mode.</i> | Measured ppO_2 deviates from setpoint by more than $0.25 \times \text{setpoint}$ continuously for 120 seconds when in CC mode. | Measured ppO_2 deviates from setpoint by at most $0.25 \times \text{setpoint}$ when in CC mode OR not in CC mode |



| Alarm | Activation condition | Deactivation condition |
|--|--|---|
| OC ppO ₂ low | ppO ₂ for the selected bailout or OC gas at the current depth < 0.16 bar | ppO ₂ for the selected bailout or OC gas at the current depth > 0.16 bar |
| OC ppO ₂ high | ppO ₂ for the selected bailout or OC gas at current depth > 1.6 bar continuously for more than 60 seconds | ppO ₂ for the selected bailout or OC gas at the current depth < 1.6 bar |
| OC ppO ₂ high (immediate) | ppO ₂ for the selected bailout or OC gas at current depth is > 1.8 bar | ppO ₂ for the selected bailout or OC gas at the current depth < 1.8 bar |
| Ascent rate | Ascent rate > 9 meters / min (Ascent rate > 30 feet / min) | Ascent rate < 9 meters / min (Ascent rate < 30 feet / min) |
| Ceiling violation | The current depth is above ceiling depth | No ceiling exists OR current depth is below ceiling depth |
| Invalid mouthpiece position <i>Only applicable in CPOD and Setpoint dive mode when a HUD is connected to the M28.</i> | The mouthpiece is neither in OC nor CC position | The mouthpiece position is in either CC or OC position |



Connection status alarms

As soon as the M28 detects the SE7EN E-module or other devices on the CAN-bus, such as the HUD or a CPOD, the M28 will begin to monitor their presence. If contact with a device is lost a disconnection alarm is triggered and the vibrator and applicable alarm icons are activated together with an on-screen message telling which device that has been disconnected. In case the M28 detects a previously disconnected device a reconnection alarm is triggered with an on-screen message telling which device that has been reconnected. In case several devices are disconnected or reconnected, messages for each device will alternate on screen. The disconnection alarms may be triggered by cable failure or failure of the disconnected device. A disconnection alarm may be followed by a reconnection alarm in case of an intermittent cable failure or an intermittent device failure.

If SE7EN is disconnected, the M28 will enter Setpoint dive mode, see the M28 manual for details. If SE7EN was configured for non-decompression diving (deco enable is OFF), the M28 will set Bailout ACTIVE when SE7EN disconnection alarm is activated. When SE7EN is configured for decompression diving (deco enable is ON), it is the responsibility of the diver to activate Bailout mode on the M28 when appropriate. The recommended action in case of a SE7EN disconnection alarm is to abort the dive in OC bailout mode.

If a CPOD is disconnected, the M28 will change dive mode from CPOD to Setpoint. At this point Bailout is set to off and it is the responsibility of the diver to activate Bailout mode on the M28 when appropriate. The recommended action in case of a CPOD disconnection alarm is to abort the dive in OC bailout mode.

The recommended action in case of a HUD disconnection alarm is to abort the dive while carefully monitoring PO2 and alarms on the M28 display.

The recommended action in case of any reconnection alarm is to abort the dive.

Disconnection alarms can be acknowledged at any time. Acknowledging a disconnection alarm means that the acoustic alarm signals are silenced, the



disconnection message and the alarm icons requesting actions are deactivated. A flashing Electronics alert icon will however remain active to remind you that a disconnection problem still exists.

Disconnection alarms can be reset when not diving. Resetting a disconnection alarm will deactivate the message together with all related alarm signals.

Reconnection alarms can be acknowledged at any time. Acknowledging a reconnection alarm means that the associated message and alarm signals are deactivated.

Notice that it is your responsibility to take appropriate action before acknowledging or resetting any disconnection or reconnection alarm.

| Alarm | Activation condition | Deactivation condition |
|----------------------|---|---|
| SE7EN disconnected | Data from SE7EN not received as expected. | Data received from SE7EN OR alarm reset by user |
| HUD disconnected | Data from HUD not received as expected. | Data received from HUD OR alarm reset by user |
| CPOD disconnected | Data from CPOD not received as expected. | Data received from CPOD OR alarm reset by user |
| Display disconnected | Data from Display not received as expected. | Data received from Display OR alarm reset by user |
| SE7EN reconnected | Data received from previously disconnected SE7EN. | Alarm acknowledged by the user OR SEVEN disconnected |
| HUD reconnected | Data received from previously disconnected HUD. | Alarm acknowledged by the user OR HUD disconnected |
| CPOD reconnected | Data received from previously disconnected CPOD. | Alarm acknowledged by the user OR CPOD disconnected |
| Display reconnected | Data received from previously disconnected Display. | Alarm acknowledged by the user OR Display disconnected |



Technical alarms

In addition to the Dive alarms and Connection status alarms, there are also several technical alarms which the M28 can activate if it detects a technical failure. Examples are pressure sensor failure, missing ppO₂ sensor, internal communication errors and firmware mismatch.

The Firmware mismatch alarm is activated when the firmware version in one or more devices differs from the firmware version in the M28. This can be remedied by updating the device(s) that have incompatible firmware, see chapter Update device firmware from the M28 for details.

The ppO₂ sensor missing alarm is activated when neither data from a SSO₂ sensor in the CPOD is received nor voltage from galvanic sensor in the CPOD is detected. In case of a sensor failure, a flashing "--" is displayed in place of the number normally measured by the sensor.



Chapter 4 Wi-Fi Access Point

HOME

To connect the M28, enable Wi-Fi on the M28 and connect to a PC/Mac or other device.

- Wi-Fi name: M28-xxx (where xxx is the number of the device)
- Password: matterhorn
- To access the home URL open a web browser and type <http://192.168.7.1>





DIVE LOG

NOTICE! The preferred method for viewing log files generated by the M28 is to use the Reef app to download and view the log files.

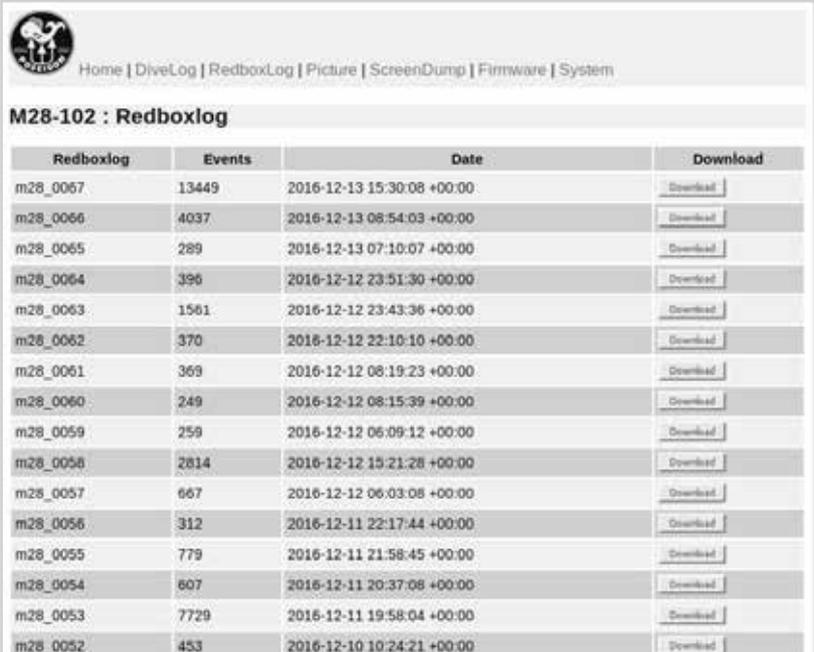
For special scenarios, the log files can also be downloaded manually using the web interface of the M28. When the M28 is connected to a PC/Mac or other device through Wi-Fi, open a web browser and type <http://192.168.7.1>. Go to the Dive Log tab and download the logs of interest. All dive logs stored on the M28 are available in the “Dive Log” tab. The dive logs contain data from dive start to dive stop which can be seen in the Dive log app on the M28. The files contain no personal user data. The dive log files are encrypted and can be imported into the Reef app for viewing.

| DiveLog | Events | Date | Download |
|---------------|--------|----------------------------|--------------------------|
| m28_dive_0016 | 45554 | 2016-11-14 17:45:13 +00:00 | Download |
| m28_dive_0015 | 15806 | 2016-11-14 17:45:13 +00:00 | Download |
| m28_dive_0014 | 24255 | 2016-11-14 17:45:12 +00:00 | Download |
| m28_dive_0013 | 14075 | 2016-11-14 17:45:12 +00:00 | Download |
| m28_dive_0012 | 18084 | 2016-11-14 17:45:12 +00:00 | Download |
| m28_dive_0011 | 15700 | 2016-11-14 17:45:12 +00:00 | Download |
| m28_dive_0010 | 15624 | 2016-11-14 17:45:12 +00:00 | Download |
| m28_dive_0009 | 18219 | 2016-11-14 17:45:12 +00:00 | Download |
| m28_dive_0008 | 15222 | 2016-11-14 17:45:12 +00:00 | Download |
| m28_dive_0007 | 86733 | 2016-11-14 17:45:12 +00:00 | Download |
| m28_dive_0006 | 39487 | 2016-11-14 17:45:12 +00:00 | Download |
| m28_dive_0005 | 81809 | 2016-11-14 17:45:11 +00:00 | Download |
| m28_dive_0004 | 68096 | 2016-11-14 17:45:11 +00:00 | Download |
| m28_dive_0003 | 70903 | 2016-11-14 17:45:11 +00:00 | Download |
| m28_dive_0002 | 42469 | 2016-11-14 17:45:11 +00:00 | Download |
| m28_dive_0001 | 84078 | 2016-11-14 17:45:11 +00:00 | Download |



REDBOX LOG

Just like the dive log files, the redbox log files contain dive data but also more detailed data with all events from when the unit was turned on until it was turned off. The main purpose of this data is for customer support. The redbox logs contain no personal user data. Redbox files are normally downloaded when downloading log files using Reef, but they can also be downloaded manually from the RedboxLog tab.



Home | DiveLog | RedboxLog | Picture | ScreenDump | Firmware | System

M28-102 : Redboxlog

| Redboxlog | Events | Date | Download |
|-----------|--------|----------------------------|--------------------------|
| m28_0067 | 13449 | 2016-12-13 15:30:08 +00:00 | Download |
| m28_0066 | 4037 | 2016-12-13 08:54:03 +00:00 | Download |
| m28_0065 | 289 | 2016-12-13 07:10:07 +00:00 | Download |
| m28_0064 | 396 | 2016-12-12 23:51:30 +00:00 | Download |
| m28_0063 | 1561 | 2016-12-12 23:43:36 +00:00 | Download |
| m28_0062 | 370 | 2016-12-12 22:10:10 +00:00 | Download |
| m28_0061 | 369 | 2016-12-12 08:19:23 +00:00 | Download |
| m28_0060 | 249 | 2016-12-12 08:15:39 +00:00 | Download |
| m28_0059 | 259 | 2016-12-12 06:09:12 +00:00 | Download |
| m28_0058 | 2814 | 2016-12-12 19:21:28 +00:00 | Download |
| m28_0057 | 667 | 2016-12-12 06:03:08 +00:00 | Download |
| m28_0056 | 312 | 2016-12-11 22:17:44 +00:00 | Download |
| m28_0055 | 779 | 2016-12-11 21:58:45 +00:00 | Download |
| m28_0054 | 607 | 2016-12-11 20:37:08 +00:00 | Download |
| m28_0053 | 7729 | 2016-12-11 19:58:04 +00:00 | Download |
| m28_0052 | 453 | 2016-12-10 10:24:21 +00:00 | Download |



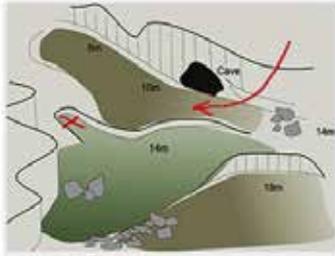
PICTURE

Pictures can be uploaded to the M28 for viewing in the M28 Picture app. The preferred method for uploading pictures is to use the Reef app, but it is also possible to upload and remove pictures using the M28 web interface. On the Picture tab, press “Browse...” to point out the picture file you want to upload and then press “Upload Image”. Uploaded pictures can be deleted by pressing the “Delete” button next to them. Notice that a deleted picture will be lost and cannot be recovered or undeleted.

Home | DiveLog | RedboxLog | Picture | ScreenDump | Firmware | System

M28-102 : Picture

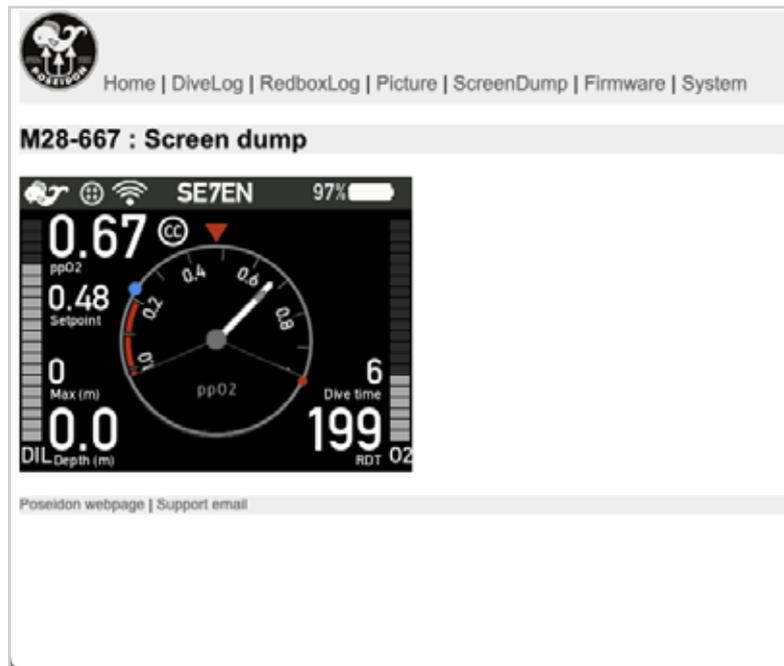
Select image to upload: No file selected.

| Picture | Name | Size | Date | |
|---|---------------|-------|----------------------------|---------------------------------------|
|  | dive_map1.jpg | 81795 | 2016-11-14 17:45:11 +00:00 | <input type="button" value="Delete"/> |
|  | pic01.jpg | 72513 | 2016-11-14 17:45:11 +00:00 | <input type="button" value="Delete"/> |



SCREEN DUMP

It is sometimes useful to capture an image of the M28 screen content (e.g., to provide to Poseidon technical support). The preferred method is to use the Reef app, but it is also possible to download a screen dump from the M28 web interface by opening the ScreenDump tab and using the web browser to download the screen picture. If necessary, reload the page to update the screen picture.





FIRMWARE UPDATE

NOTICE! The preferred method to update firmware on the M28 is to use the Reef app. Using the web interface for firmware update is an option for special scenarios and is not generally recommended.

The M28 firmware is made of by two parts, one for the MAIN processor and one for the PMIC processor. The firmware for the MAIN processor is larger in size and is installed via WiFi, while the firmware for the PMIC processor is smaller and needs to be installed via the CAN connector. Normally, Reef (or Rb config) will install both firmware parts during the firmware update process. The MAIN processor firmware (distributed in a .posm file) can also be installed from the M28 web interface. When the M28 is connected to a PC/Mac or other device through the Wi-Fi, select the firmware tab and press the “Browse” button to select the correct .posm firmware file on your PC/Mac or other device. Then press the “Upload firmware file” button to load the new firmware onto the M28. When the new firmware is loaded, you need to reboot the M28 to install it. This can be done through the “System” menu item in the browser and may take a few minutes to complete.



IMPORTANT:

Do not attempt to downgrade a M28 with PCB version 2B0F0700 to a firmware version prior to 2.67 / 2.04, because previous versions of the firmware do not support new hardware. The PCB version is displayed in the System application as “PCB: 2B0F0700”.



SYSTEM

The system option allows you to power off or reboot the M28.

The screenshot displays the 'System' page for a Poseidon M28-102. At the top left is the Poseidon logo. To its right is a navigation menu with links: Home | DiveLog | RedboxLog | Picture | ScreenDump | Firmware | System. Below the navigation is the title 'M28-102 : System'. A table lists system details:

| | |
|-------------------|---|
| SN | M28-102 |
| Unit time in UTC | 2016-12-13 15:32:24 |
| Sys version | HOSTNAME=m28v1_dive BUILD_DATE=2016-12-13 09:41:23 BR_TAG=v1.5.8 BR=2016.08.1 |
| FW version | DATE=2016-10-30 VERSION=2.0.1 VER_HEX=0x020001 INFO: Release version. |
| UUID | 50FF6A06-50674857-47540187-00000000 |
| Manufacturer date | 2016-07-12 13:02:11 |
| STM FW version | 2B0F0130 |
| STM BL version | 2B0F1600 |
| PCB version | 2B0F0300 |

Below the table are two buttons: 'Power off' and 'Reboot'. At the bottom of the page is a footer with links: Poseidon webpage | Retreavier webpage | Support email.

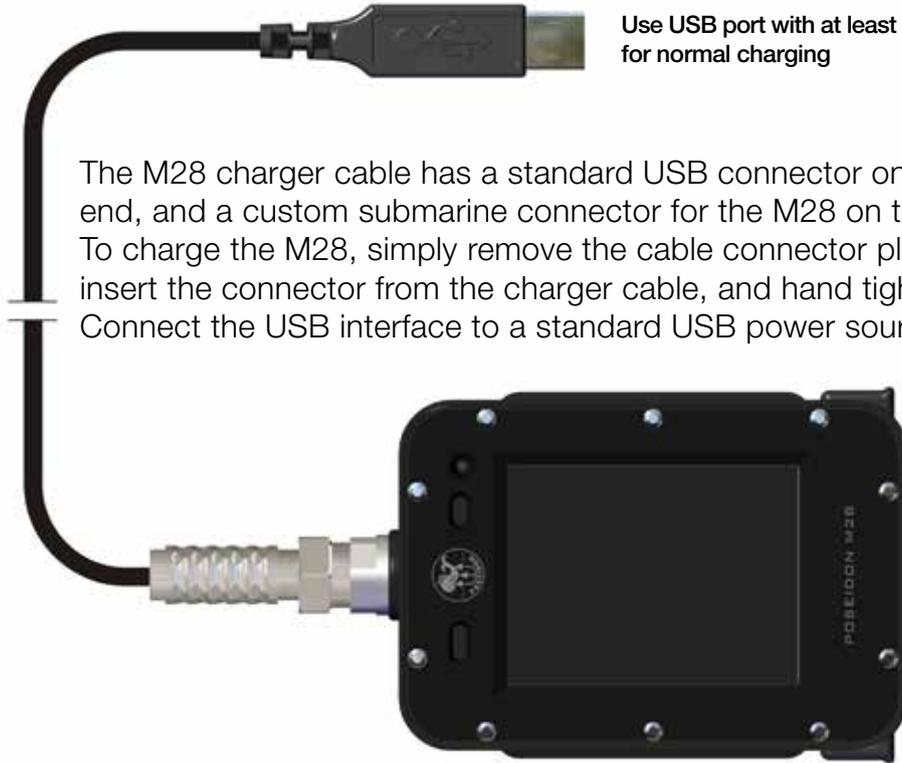


Chapter 5 Recharge the M28 battery



**Use USB port with at least 1.5 A
for normal charging**

The M28 charger cable has a standard USB connector on one end, and a custom submarine connector for the M28 on the other. To charge the M28, simply remove the cable connector plug, insert the connector from the charger cable, and hand tighten the nut. Connect the USB interface to a standard USB power source.



The power source can be any USB connection providing 5.1V and a minimum current of 1.5 Amp. If the LED is flashing alternating green and red for at least 1 minute, it is most likely that the USB power supply's current is insufficient.



Chapter 6 Bungee cord, Care and maintenance

Bungee cord preparation



Example of how the bungee cord can be attached.

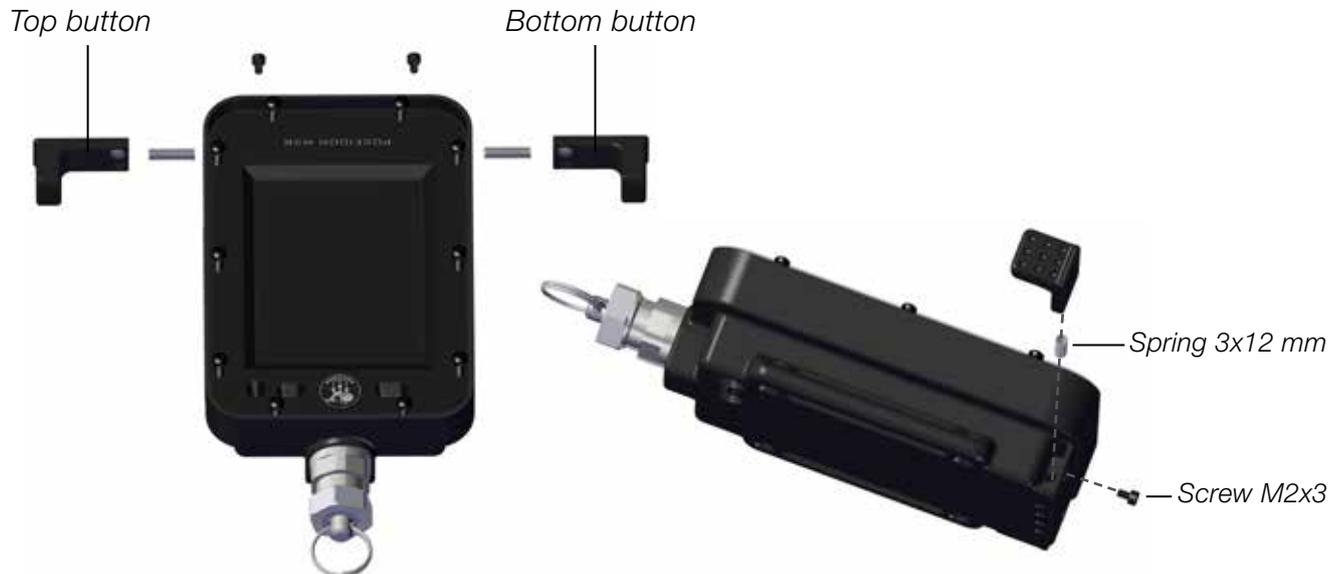


Care and maintenance

The Poseidon M28 is a computer-controlled precision underwater instrument. Its successful continued operation depends upon preventing water from entering the inner cavity of the computer or within the cable connector. The computer is factory sealed and pressure tested before delivery and there is no reason to open the device up for any kind of maintenance. If a device has been opened a pressure test is required to verify water tightness.

Cleaning or replacing of the buttons

If dirt and particles entering the the button mechanics may affect its function. Buttons can be removed according to the image below and the compartment rinsed and flushed from dirt if necessary.



Ensure that the compression spring is correctly re-installed. Hand tighten the screws carefully. The buttons are automatically recalibrated by the M28. Buttons, springs, and screws are available to be ordered as spare parts.



O-ring care and maintenance

One particular part of the device will require special attention is the cable connector. Make sure that any kind of connecting device (cable or plug) is greased, carefully installed and tightened before outdoor or underwater use.

Long-term storage

Leaving the M28 for long periods of time without recharging will lead to premature battery aging. If the M28 is not used during a longer time period, the best storage method is to recharge the M28 once a month. If this is not possible, the best long-term solution is to leave the M28 plugged into the charger. However the method of monthly recharging of the M28 will maximize its battery life. Store the M28 in a cool, dry environment.

Storage temperature: -20°C to $+50^{\circ}\text{C}$ / -4°F to $+122^{\circ}\text{F}$.

Transport in Pelicase

Open "Vent Valve" on Pelicase when transporting unit between places with altitude difference of 300 ft/100 m or more.

Open "Vent Valve" on Pelicase if flying with your M28



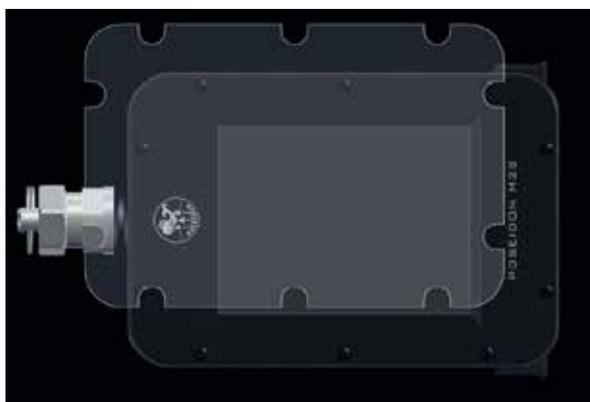


Chapter 7 Protective Cover & Screen Protection

(accessories, not included with M28)



Protective Cover, black or red.

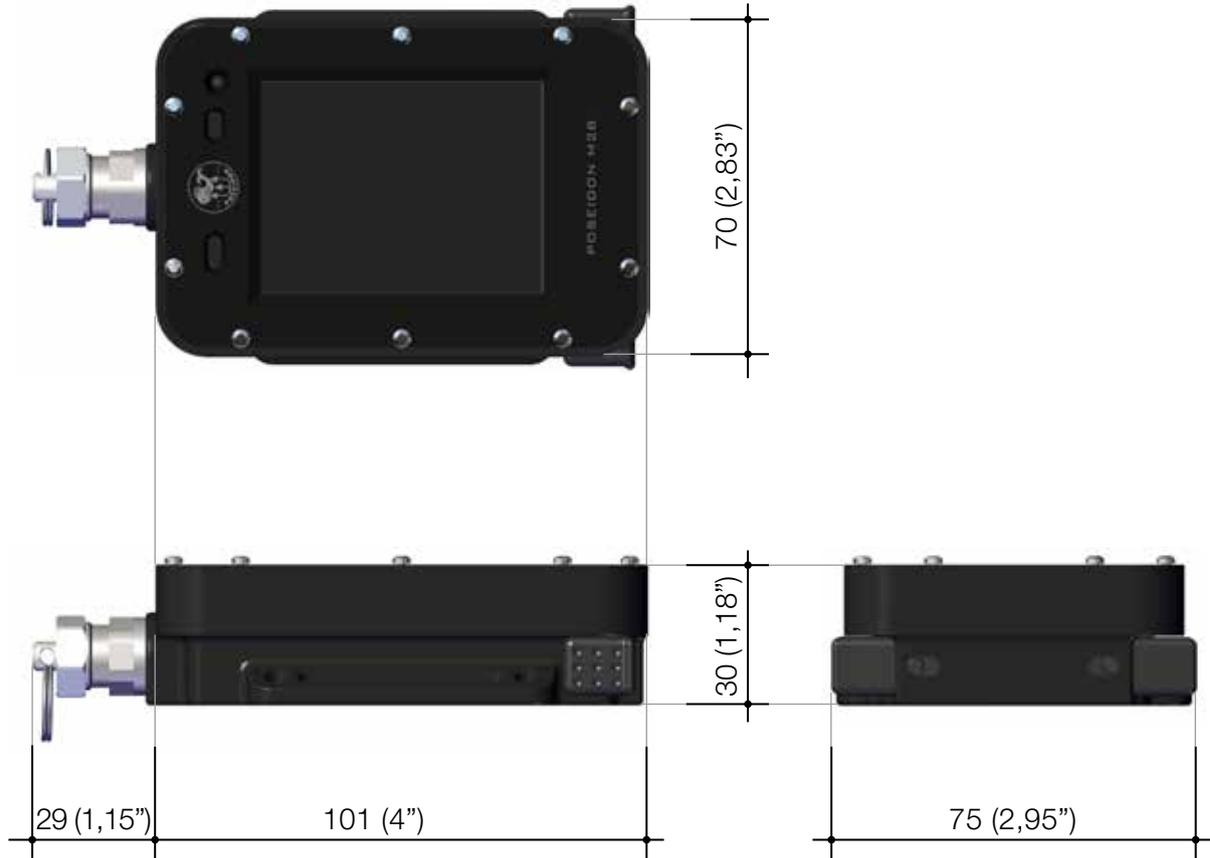


Screen Protection.



Chapter 8 Technical specifications

Dimensions and weight.



Weight: 260 gr (0,57 lb)



Operating conditions

Normal altitude range: 0 to 3,000 m / 10,000 ft above sea level

Operating temperature: -20°C to +50°C / -4°F to +122°F

Storage temperature: -20°C to +50°C / -4°F to +122°F

Do not leave the dive computer in direct sunlight.

Depth gauge

Temperature compensated pressure sensor

Maximum depth of operation: 200 m / 656 ft (complying with EN 13319)

Maximum static pressure: 20 bar (complying with EN 13319 and ISO 6425)

Accuracy: $\pm 1\%$ of full scale or better from 0 to 200 m / 656 ft at 20°C / 68°F
(complying with EN 13319)

Depth display range: 0 to 300 m / 984 ft

International design registration (WIPO) DM/093447 for design of computer M28,
CPOD and graphic interface.



Appendix 1 Symbols

Alarm and Warning symbols

| | | | |
|---|-------------------------|---|-----------------------------|
|  | DO NOT DIVE |  | No Circuit mode |
|  | General alert |  | Mouthpiece position Unknown |
|  | Stop ascending |  | Question |
|  | Electronics alert |  | Attention |
|  | Abort |  | Compass calibration |
|  | Celling alert |  | Compass Magnetism Warning |
|  | Ascend indicator |  | Open Circuit |
|  | Decend indicator |  | Closed Circuit |
|  | C0, C1 or C2 Confidence |  | Gauge Mode |



Display states and views



Land view



Dive view



Dive log



Map



Picture



Planner



System



Settings

Battery status



Level



Level low



Charging

Connecting symbols



Wifi



CAN connected



CAN connected, power input



CAN connected, power output



Appendix 2 Rebreather connectivity examples



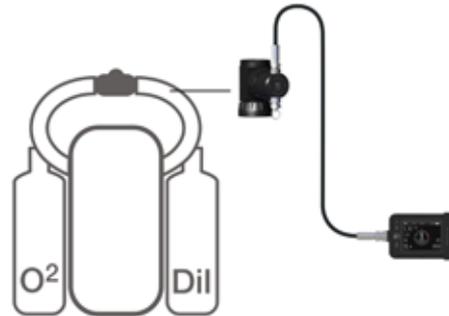
Standard recreational setup
(SE7EN + M28)



Recreational setup
(SE7EN + CPOD + M28)



Standard technical setup
(SE7EN + Primary M28,
CPOD + Secondary M28)



Setup for loop ppO₂ monitoring
on any rebreather
(CPOD + M28)



Support and Feedback page

If you need support or have feedback with any suggestions regarding functions, display views etc.

Please email them to

support@poseidon.com

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