

POSEIDON M28

USER MANUAL 1.4

OS version 2.1.7



Table of Contents

Table of Contents	1
Version update log	4
Conventions Used in this Guide	5
Preface	7
Features:	7
Conformance with CE requirements	8
Chapter 1 Preparation	9
An overview of the M28	10
Technical specifications	11
Charger cable	13
Charging	14
Dive log data	14
Wi-Fi connection	14
Care and maintenance	15
Cleaning or replacing of the buttons	15
O-ring care and maintenance	16
Long-term storage	16



Chapter 2 Assembly	17
Bungee cord preparation	18
First start up	19
Button function	20
Monitoring the Display	21
The menu system	22
Settings	23
Backlight control	25
Chapter 3 Display	28
Top bar	28
System app	29
System app - menu tree	30
Force fw update	31
Update CAN enabled Poseidon products	31
Update SE7EN firmware through the M28	33
Land app	34
Dive app	35
OPEN CIRCUIT (OC) MODE MENU	40
OPEN CIRCUIT (OC) MODE AFTER DIVE START	41
CONFIGURING GASES IN OC MODE	42
GAS SELECTION IN OC MODE	42
DECOMPRESSION MODEL SELECTION	42
M28 CLOSED CIRCUIT MODE MENU	43



M28 - CALIBRATE CPOD#0 WITH GALVANIC CELL	44
M28 CLOSED CIRCUIT MODE AFTER DIVE START	45
SE7EN CLOSED CIRCUIT MODE MENU	46
SE7EN CLOSED CIRCUIT MODE AFTER DIVE START	47
GAUGE MODE	48
Center circle	49
Dive log app	54
Map app	55
Picture app	56
Planner app	57
Chapter 4 Wi-Fi Access Point	58
HOME	58
DIVE LOG	59
REDBOX LOG	60
PICTURE	61
SCREEN DUMP	62
FIRMWARE UPDATE	63
SYSTEM	64
Appendix 1 Symbols	65
Appendix 2 Connectivity example to Rebreather	67
Support and Feedback page	68



Version update log

Version	Date	Changes from last version	Page
1.4	2018.07.04	Update all pictures and text related to new version.	
1.3	2017.05.29	Conformance with CE requirements Technical specifications New chapter - Care and maintenance, Cleaning or replacing buttons Battery status display Calibrate CPOD#0 with Galvanic Cell Calibrating compass GPS, satellite connection	8 11 15 35 42 49 53

DANGER:

The M28 is an infinitely programmable computer and therefore the firmware will be constantly upgraded with improvements, new features and apps. As these modifications occur, the user manual will be updated. Make sure that after any firmware update onto the device you consult the last updated user manual for the latest modifications. Failure to do this may entail a life-threatening risk.



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 divers comfort or enhance enjoyment during dives.



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Manual Version 1.4 - July 2018

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

Congratulations on your decision to purchase the Poseidon M28 dive computer.

The Poseidon M28 design includes several fundamental improvements over previous dive computer designs.

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

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 2 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.
- Real-time GPS surface positioning
- Depth rated to maximum 200m / 656ft
- Firmware upgradable



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.



Chapter 1 Preparation

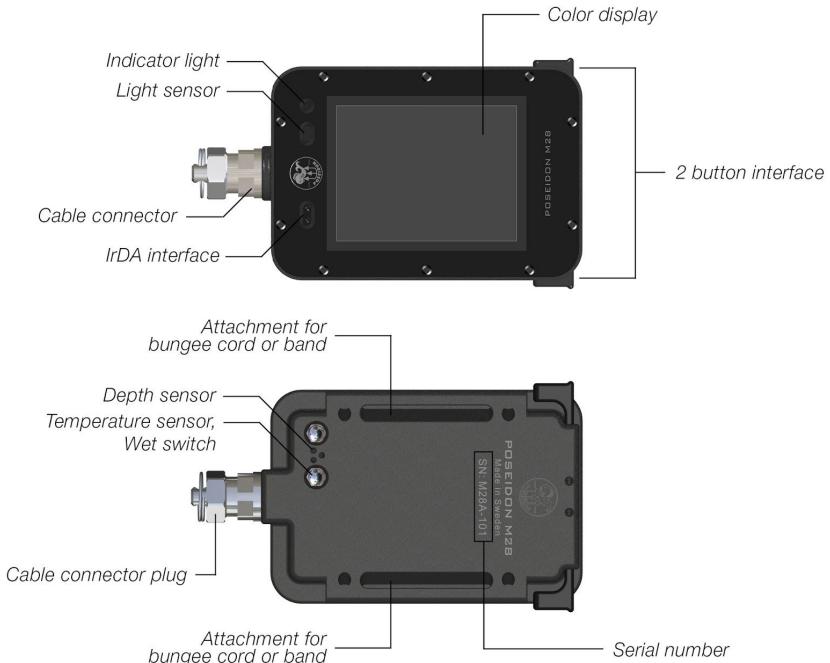
This chapter describes the steps to assemble and prepare the Poseidon M28 for diving. The M28 is a modular device with sub systems. Box content:

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



An overview of the M28

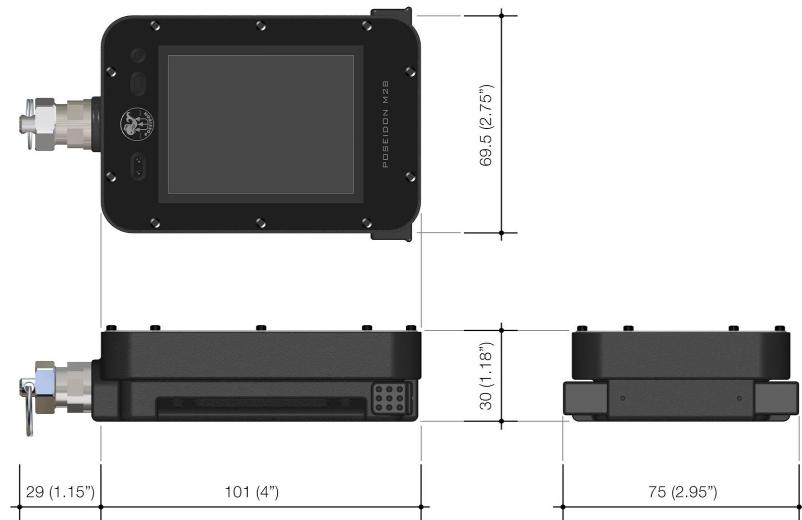
The figure illustrates these locations and the main features of the Poseidon M28. The “back” of the M28 is the side opposite to the display side. Following is a brief description of each of the major components.





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: ± 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



Charger cable



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 using a 15mm tool, 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 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.



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 powered-up. 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 battery information, dive time and depth. However, the dive log contains more information.



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.



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 to maximum operating depth before delivery and there is no reason to open the device up for any kind of maintenance.

Cleaning or replacing of the buttons

If dirt and particles entering 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.



Make sure to re-install the compression spring correctly and the buttons are placed on the correct side because these are different. Hand tighten the screws carefully. Buttons, springs and screws are available to be ordered as spare parts. When assembling new buttons those shall be recalibrated through the PC software.



O-ring care and maintenance

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

Long-term storage

Allowing the M28 to sit for long periods of time without recharging will lead to premature failure of the battery. If the M28 will not be used for a substantial period of time, the best storage method is to top off the charge once a month by running it on the normal charge cycle with the charger cable. If this is not possible, then the best long-term solution is to leave the M28 plugged into the charger. The method of monthly top-off of charge, however, will maximize the battery life. Store the M28 in a cool, dry environment.

Storage temperature: -20°C to +50°C / -4°F to +122°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 2 Assembly

Before you start to assemble or use your Poseidon M28, you should perform the following preparations:

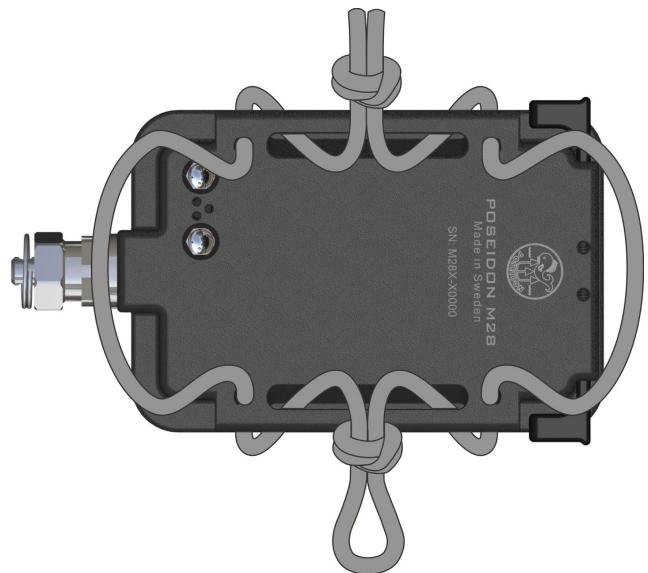
- Make sure your battery is fully charged.
- Make sure you have all parts and that they are undamaged.
- Lubricate the o-ring on the cable connector or cable connector plug
- Make sure that cable or plug connection is properly tightened.



The Poseidon M28 is a very powerful life-support system that offers an unprecedented new experience in recreational or technical diving. But it is also a complex, high-technology device that includes sensors and firmware that need to operate reliably in an underwater environment, for the important purpose of keeping a diver safe and up to date with accurate information. The M28 design team has gone to extraordinary measures to visualize critical information during a dive. This chapter explains the startup procedures, including manual actions that are required by the user, and how to interpret the information displayed.



Bungee cord preparation



Example of how the bungee cord can be attached.



First start up

To start the M28 press both buttons simultaneously and hold for three seconds.



Once the M28 has been started, the green indicator light will flash 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 land app, recognized by a large central analogue clock.

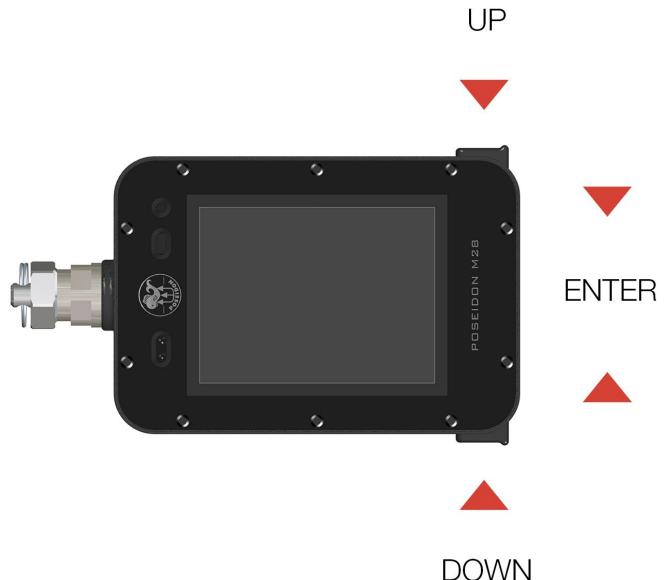
DANGER:

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



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 again to select the highlighted option. After 30 seconds of no activity, the unit returns to the previous screen.





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.

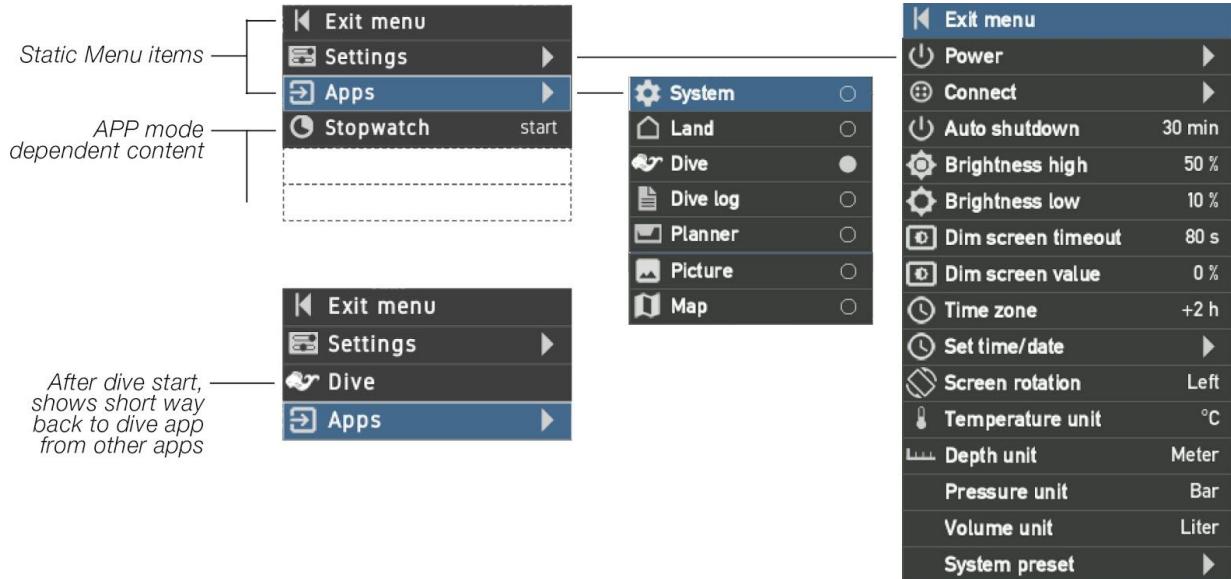


On the following pages the various application modes will be discussed, as well as the menu structure. The “Land” app is the initial app after start up. This app is automatically visible after an initial safety message that can be confirmed by pressing either one of the two buttons.



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. The menu now becomes visible, the top 3 selections 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" selection bar 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.





Settings



Power



Back

This options is not available in dive mode

Power off

Reboot update

The power menu allows you to turn off the device or reboot the device after a firmware update. Pressing both buttons on one of these menu items will power off the M28 (and reboot to install new firmware, if selected). If the unit does not power off after a 1 minute, it is also possible to force a power off by holding both buttons pressed for more than 8 seconds.

Connect



Exit menu

This options is not available in dive mode

Power out

ON

GPS

OFF

Wifi AP

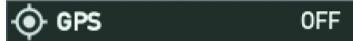
ON

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

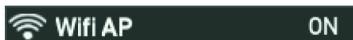
Power out

ON

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.



Pressing both buttons on this menu item will toggle this feature between OFF (default) and ON. When set to ON, the GPS icon will appear in the upper bar of the Display. The icon will flash until a GPS fix is received.



To communicate with the M28 from any other device 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 go to 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 will be discussed in a later section of this manual.

Remember that the Wi-Fi mode is affecting the battery life.



In case of no activity, M28 closes after the set time to save power.



The highest backlight brightness to be used at the highest ambient light level. Remember that high level also increases the battery current and you get a shorter battery life.



Brightness low

1

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

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 life.

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 key activity will restart the timeout counter to selected value. When selecting the value of 0, will turn off the function. 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 temperature between celsius (metric) or fahrenheit (imperial) units to be displayed.

Depth unit Meter

Switch depth between meters (metric) or feet (imperial) units to be displayed.

Pressure unit Bar

Switch pressure between Bar (metric) or PSI (imperial) units to be displayed.

Volume unit Liter

Switch tank volume between liter (metric) or cubic feet (imperial) units to be displayed.



System preset ➤

◀ Back

- Set to Metric (EU)**
- Set to Imperial (US)**
- Factory default**
- Clear tissue values**

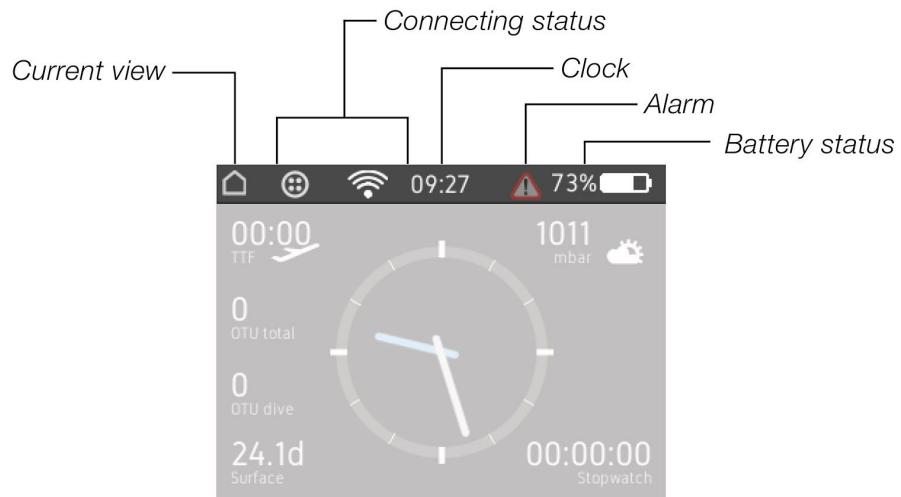
This is a quick way to configure the unit to be used in Metric (EU) or Imperial (US) mode. This will only affect the metric and imperial part of the settings. Use the "Factory default" to reset the settings back to factory settings. This will not erase any dive log, redbox log or any pictures, only set the settings back to default.



Chapter 3 Display

Top bar

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





The System app provides useful information concerning the M28 computer and its hardware. The information provided is information that Poseidon might need in case of contact concerning performance issues with the product.

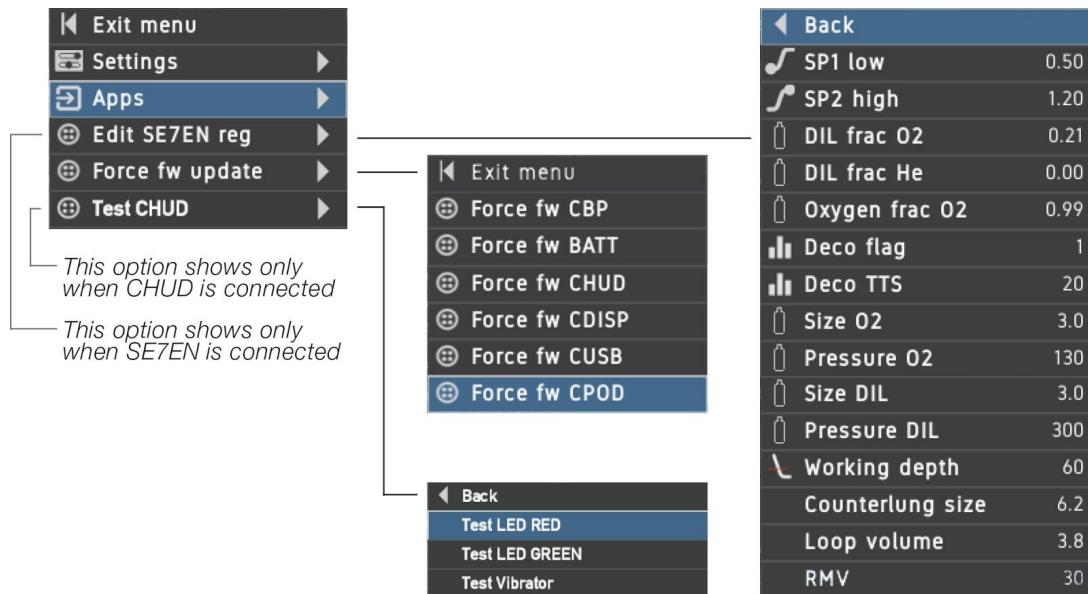
Under 'System' the following information can be found:

- Current system time adjusted with selected time zone value.
- Wi-Fi status
- OS, APP and CAN firmware version
- Bootloader versions
- Manufacturing ID
- A universally unique identifier (UUID) is an identifier standard used in software construction.
- Sensor information
- Available firmware version for SE7EN update
- Connected 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. Use this feature only if a previous update 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 CBP

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

Force fw BATT

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

Force fw CHUD

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

Force fw CDISP

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



Update SE7EN firmware through the M28

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

Option 1

The firmware control within the M28 is even more sophisticated. If during predive 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 also be visible during this process.

Option 2

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.

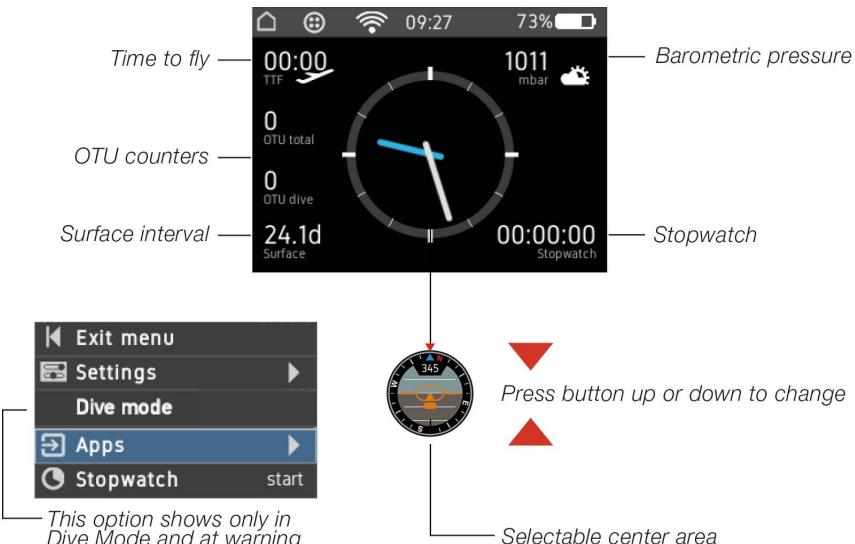
To enable the “power out” function: The “power out” function is located in the settings menu. Simply select “power out” and the CAN connect icon will be visible in the connecting status area.



Land app

The Land app gives information valuable to the diver after or prior to the dive, and is the default app when the M28 is first powered up. If the unit is powered up connected to the SE7EN it will switch directly to the SE7EN app after powerup.

Most of the visible content of the land mode is static but the center icon and stop watch can be used. To alter the center clock to show compass, simply use either button to alter between clock or compass. To use the stopwatch, press both buttons simultaneously and select stopwatch. The timer will now reset and start counting until both buttons are pressed once again and stopwatch is selected.

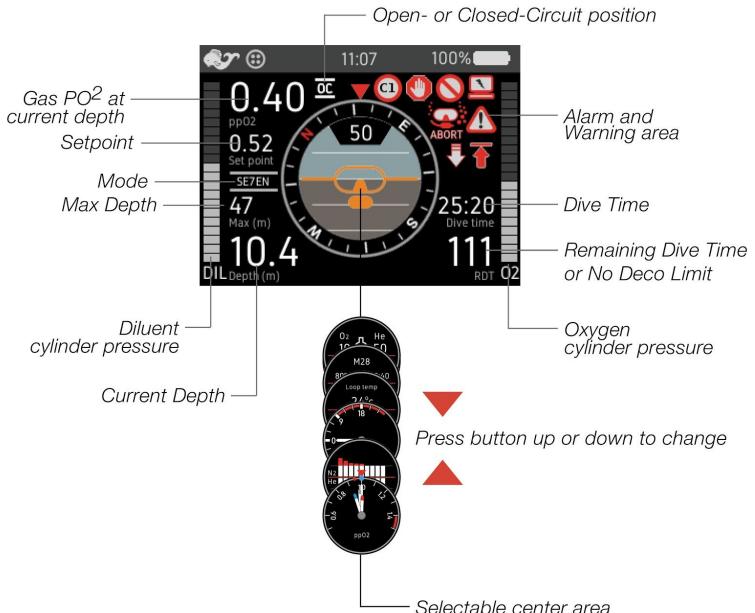




Dive app

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.





Battery status can be changed when connecting other devices.
In the Top Bar always shows the device whose battery status is the lowest.



Battery status can displays in Center circle for multiple devices simultaneously.



Center overlay box



Ceiling information with depth of the current decompression stop.

GAS to LOW
ppO2 0.18

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

300
Pre Breath

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

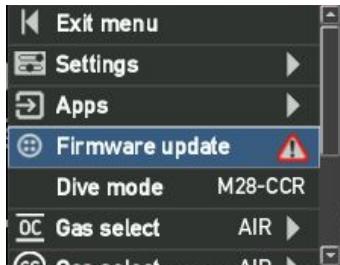
Fw v1.32
Err: Backpack

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.



FW update
CHUD

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



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



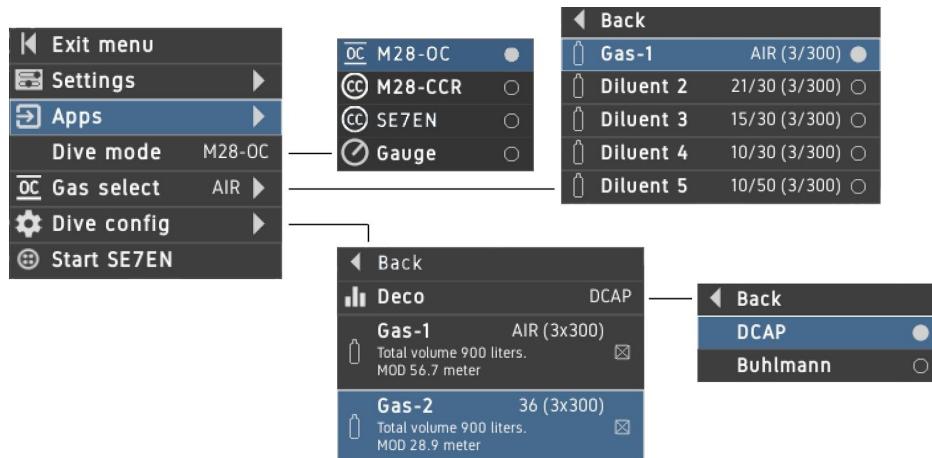
When the user has selected to update firmware this screen will appear and inform of the firmware update progress status. Wait until is is completed.



OPEN CIRCUIT (OC) MODE MENU

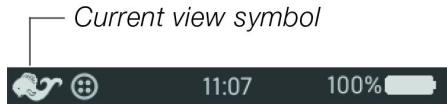
The M28 computer contains a powerful Open Circuit mode dive computer that handles decompression and multiple gases. To select the M28-OC mode, press both buttons to enter the menu system. Select Apps and then further Dive. Once in Dive, select Dive mode and M28-OC. The computer is now set into OC mode.

In terms of decompression models the system can be configured for either DCAP or with Bühlmann ZHL16C decompression algorithm with gradient factors (GF). 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



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.

◀ Back

Gas-1 AIR (3/300) ●

Diluent 2 21/30 (3/300) ○

Diluent 3 15/30 (3/300) ○

Diluent 4 10/30 (3/300) ○

Diluent 5 10/50 (3/300) ○

◀ Back

Gas-1 AIR (3x300)

Total volume 900 liters. MOD 56.7 meter

Gas-2 36 (3x300)

Total volume 900 liters. MOD 28.9 meter



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 now a multiple of gases already in the computer named Oxygen, Gas 1 to Gas 8. Each of those gases can be individually configured and a certain tank size can be defined per gas. Each gas can also be enabled or disabled. Select enable to make the gas appears in the Gas select list.

WARNING:

ONLY ENABLE GASES YOU ARE CARRYING ON THE DIVE.

GAS SELECTION IN OC MODE

While diving it's easy to change the gas you are breathing through the "gas select" function. 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 define the algorithm of use simply 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 value is 40/70.

DANGER:

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



M28 CLOSED CIRCUIT MODE MENU

The screenshot displays the M28 Closed Circuit Mode menu with the following structure:

- Main Menu:**
 - Exit menu
 - Settings
 - Apps (selected)
 - Dive mode: M28-CCR
 - Gas select: AIR (selected)
 - Gas select: AIR
 - Setpoint: 0.50/1.20
 - Dive config
 - Start SE7EN
- Gas Selection Sub-menu (selected):**
 - Back
 - M28-OC (radio button)
 - M28-CCR (radio button, selected)
 - SE7EN (radio button)
 - Gauge (radio button)
- Deco Sub-menu (selected):**
 - Back
 - DCAP (radio button, selected)
 - Buhlmann (radio button)
- DCAP Sub-menu (selected):**
 - Back
 - Deco DCAP
 - Oxygen: 99% (3x210)
Total volume 630 liters.
 - Gas-1: AIR (3x300)
Total volume 900 liters.
MOD 56.7 meter
 - Gas-2: 36 (3x300)
Total volume 900 liters.
MOD 28.9 meter

In M28 Closed Circuit mode the M28 will guess the gas mixture that the diver is breathing based on the settings selected. If a CPOD with an oxygen sensor is connected and mounted on the loop the decompression model will use this as input.

WARNING:

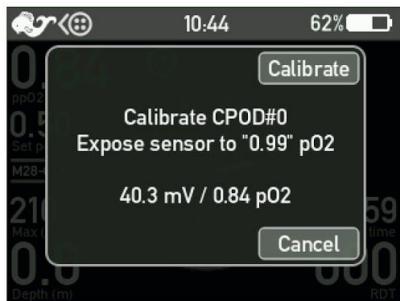
In M28-CCR the decompression model is using the values entered by the diver. False values used could lead to serious injury or death.



M28 - CALIBRATE CPOD#0 WITH GALVANIC CELL

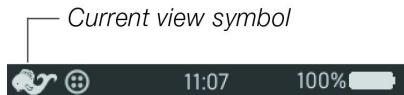


This option shows when
CPOD with Galvanic cell
is connected





M28 CLOSED CIRCUIT MODE AFTER DIVE START



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.

The first screenshot shows the main menu with options: Exit menu, Settings, Apps, BAILOUT (off), Gas select (AIR), Gas select (AIR), Setpoint (0.50/1.30), and Dive config. The second screenshot shows a list of gases: Gas-1 (AIR 3/300 selected), Diluent 2 (21/30 3/300), Diluent 3 (15/30 3/300), Diluent 4 (10/30 3/300), and Diluent 5 (10/50 3/300). The third screenshot shows detailed settings for Gas-1 and Gas-2, including total volume (900 liters) and MOD (56.7 meter and 28.9 meter).

- Exit menu
- Settings
- Apps
- BAILOUT off
- Gas select AIR
- Gas select AIR
- Setpoint 0.50/1.30
- Dive config

Gas selection screen:

Gas	Gas Type	Status
Gas-1	AIR (3/300)	Selected
Diluent 2	21/30 (3/300)	Unselected
Diluent 3	15/30 (3/300)	Unselected
Diluent 4	10/30 (3/300)	Unselected
Diluent 5	10/50 (3/300)	Unselected

Gas details screen:

Gas	Type	Total Volume	MOD
Gas-1	AIR (3x300)	Total volume 900 liters.	MOD 56.7 meter
Gas-2	36 (3x300)	Total volume 900 liters.	MOD 28.9 meter



SE7EN CLOSED CIRCUIT 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.

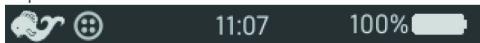
The image displays a hierarchical menu structure for the SE7EN Closed Circuit Mode:

- Main Menu:**
 - Exit menu
 - Settings
 - Apps
 - Dive mode SE7EN
 - Gas select AIR
 - Setpoint 0.50/1.20
 - Dive config
 - Start SE7EN
 - Set SE7EN RTC
- Sub-menu for Apps:**
 - M28-OC
 - M28-CCR
 - SE7EN** (selected)
 - Gauge
- Sub-menu for Gauge:**
 - Diluent 1 23 (3/300) (selected)
 - Diluent 2 21/30 (3/300)
 - Diluent 3 15/30 (3/300)
 - Diluent 4 10/30 (3/300)
 - Diluent 5 10/50 (3/300)
- Sub-menu for Dive config:**
 - Deco DCAP
 - Oxygen 99% (3x210)
Total volume 630 liters.
 - Gas-1 AIR (3x300)
Total volume 900 liters.
MOD 56.7 meter
 - Gas-2 36 (3x300)** (selected)
Total volume 900 liters.
MOD 28.9 meter
- Sub-menu for Gas-2:**
 - DCAP (selected)
 - Buhlmann



SE7EN CLOSED CIRCUIT MODE AFTER DIVE START

— Current view symbol



11:07

100%

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.

The image shows the SE7EN menu structure. On the left, a main menu includes "Exit menu", "Settings", "Apps" (which is highlighted), "Gas select AIR", "Setpoint 0.50/1.28", and "Dive config". A callout points to "Dive config" with the note: "This option shows only then SE7EN is in Bailout mode". To the right, two sub-menus are shown: one for "Diluent" options (1-5) and another for "Gas" options (1-2). The "Diluent 1" option is selected.

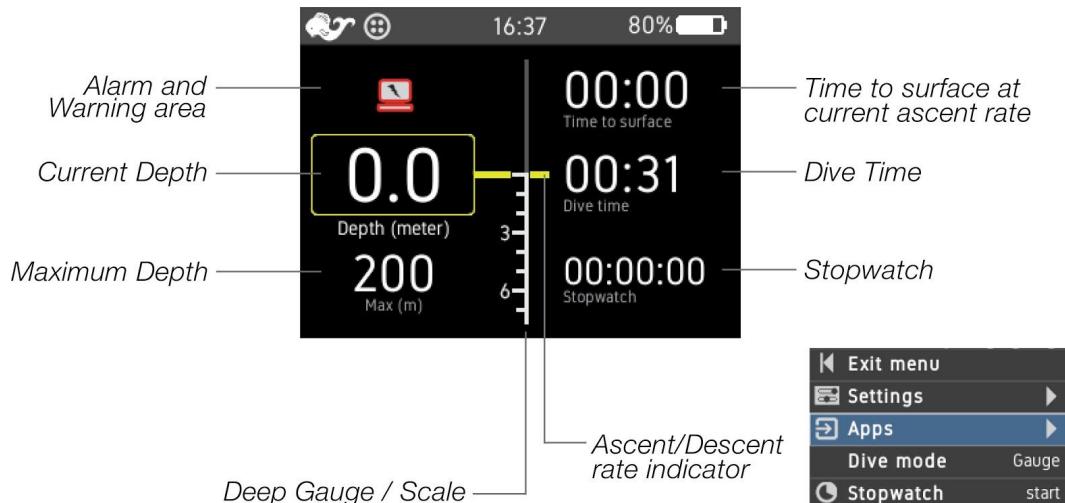
Diluent	Value	Status
1	23 (3/300)	Selected
2	21/30 (3/300)	Unselected
3	15/30 (3/300)	Unselected
4	10/30 (3/300)	Unselected
5	10/50 (3/300)	Unselected

Gas	Value	Status
Gas-1	AIR (3x300) Total volume 900 liters. MOD 56.7 meter	Selected
Gas-2	36 (3x300) Total volume 900 liters. MOD 28.9 meter	Unselected



GAUGE MODE

The Gauge mode will give the diver depth and time information, similar to a bottom timer. The stopwatch functionality is exactly the same as in Land mode. NOTE! The decompression algorithm is disabled in this mode.



WARNING:

The decompression algorithm is disabled in this mode.



Center circle

Center circle options. Each center area has a specific purpose and all center circles are not used in all modes.



Clock



ppO2



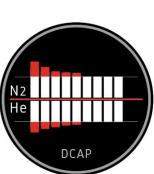
Ascent/Descent
rate



Setpoint



Compass
and Gyro



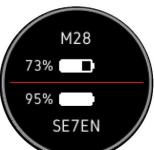
DCAP
tissue graf



Bühlmann
tissue graf



Cylinder pressure
and gas



Battery status



Temperature



Clock. Showing the same time and time zone like in the Top Bar. Adjustments of clock are made in settings.



ppO2 gauge. Will show 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. Setpoint is always pointing up to the red marker. So when setpoint is changed the gauge will rotate to reflect the change. This will help the diver to quickly understand if the gas 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 is useful information to a technical diver that will perform a loop flush.





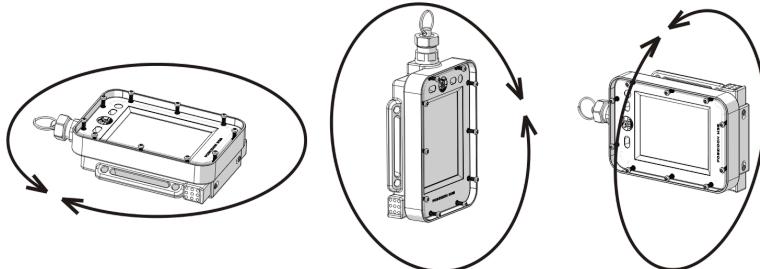
Ascent/Descent rate. Showing Ascent and Descent rate per minute. Changing what is displayed between meter and foot by choice in Settings / Depth unit. Speed alarm will start when Ascent speed is higher than 9 meters/minute. There is no alarm on Descent, but remember that ppO₂ in the gas will change when depth is changing.



Compass and Gyro. Displays compass direction and Gyro positioning. The compass is tilt independant.



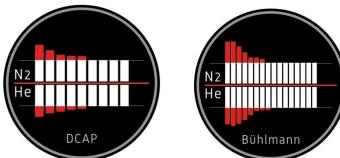
This symbol appears when the compass is not calibrated. Calibrate by rotating the computer slowly in all directions like the picture until the compass found their position and the symbol disappears.



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



Setpoint. Displays the current Set point high and Set point low. Settings made in Dive mode. Here is an example of a sliding setpoint used by the M28 and SE7EN.



DCAP or Bühlmann tissue value graph. Indicates the gas load of the tissues used in the decompression model. Fast tissues on the left side and slow on the right. Nitrogen (N2) is the upper part of the graph growing up, while helium (He) is the lower part of the graph, growing down. The intent of this graph is to give an overview of the tissue load.



Cylinder pressure and gas. Displays the status of the current selected gas tank. Volume, pressure and gas mix. Change pressure unit and volume unit in Settings.



Battery status. Displays the battery status (% charged battery). If a SE7EN is connected, the M28 also displays the SE7EN battery status. The battery icon in the Top Bar always shows the device whose battery status is the lowest.



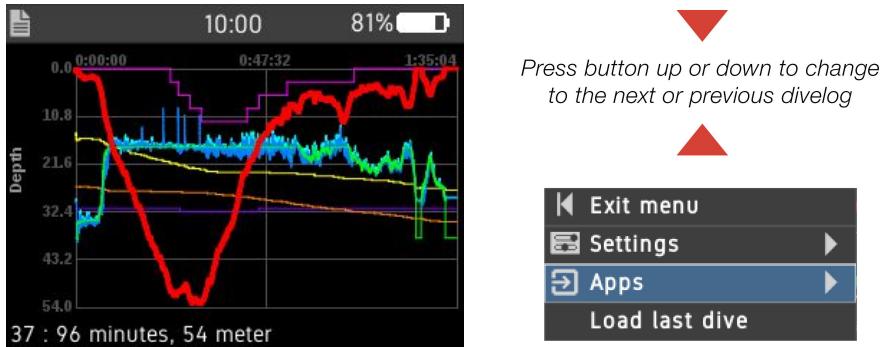
Temperature. Displays the temperature status in water when you dive. If SE7EN is connected also displays the temperature in your breathing loop. You can change what is displayed between Celsius and Fahrenheit in "Settings/Temperature" unit.



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 in the lower left corner.

To change between the stored logs use the buttons on the M28.

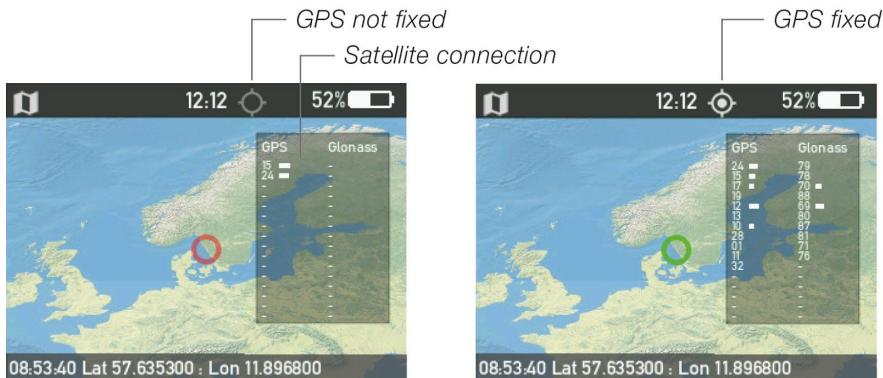


Each log has a unique id number, followed by dive time and max depth. Future updates will show more information.

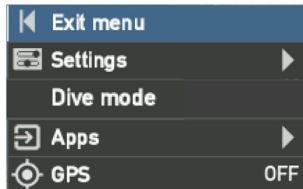


Map app

The M28 dive computer contains a GPS receiver that can give your exact position while on land. The M28 contains a preloaded world map and gives you your position in Latitude / Longitude, using the WGS84 datum, including accurate time and date. There is also a GPS/GLONASS signal graph in the view.



This option shows ——
only in Dive Mode
and at warning



In future firmware updates, more functionality will be available.

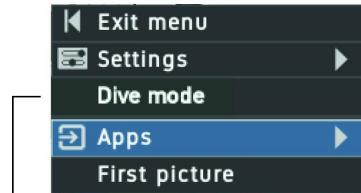


Picture app

The M28 includes a picture app that allows you to easily view stored pictures and other information. You can upload or remove pictures from a PC/Smartphone in 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



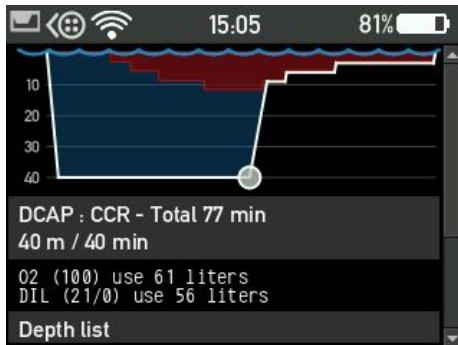
This option shows only in
Dive Mode and at warning

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



Planner app

The planner is a useful tool that gives an understanding of the profile of a certain dive based on profile and mode (OC or CC). Simply press both buttons and select/define dive prerequisites and desired mode. The computer will then calculate a dive profile based on the parameters. The dive plan defined will be displayed as a graphical view until it's changed. If OC is selected the planner will first calculate CC up to the selected time and depth point, indicated by a round dot, then calculate OC from the point until the surface. The OC part will also be indicated with a red line. The units used is selected in the Settings list. The current tissue load and the current altitude (ambient pressure) are used as start value of the calculation.



Exit menu	
Settings	▶
Apps	▶
Dive depth	40 m
Dive time	40 min
DECO	DCAP
Mode	CCR
OC-Bailout	Off
SP1 low	0.50
SP2 high	1.20
Frac O2	21
Frac He	0
Last stop	3 m



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>

The screenshot shows the 'M28-102 : Home' page. At the top, there's a circular logo with a diver and the word 'POSEIDON'. Below it is a navigation bar with links: Home, DiveLog, RedboxLog, Picture, ScreenDump, Firmware, and System. The main content area has a title 'M28-102 : Home'. Underneath, there's a section titled 'Documents to download' containing a file named 'Appendix3_se7en_connect_m28_ver1_0'. A small thumbnail image of the file is shown. At the bottom of the page, there's a footer with links: Poseidon webpage, Rebreather webpage, and Support email.



DIVE LOG

When the M28 is connected to a PC/Mac or other device through Wi-Fi, it is possible to download dive log files. The dive log files are encrypted and can be read with the latest release of RbConfig. Simply go to the Dive Log tab and download the desired logs to your local PC/Mac. Under the “Dive Log” you can find all dive logs stored on the M28. The dive log contains data from dive start to dive stop which can be seen in the dive log app. The file contains no personal user data.

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



REDBOX LOG

Just like the dive log the redbox log contains dive data but also more detailed data that logs all events from when the unit is turned on until it's turned off. The main purpose of this data is for customer support, quality and contains no user data.

The screenshot shows a web-based interface for viewing Redbox log data. At the top, there is a navigation bar with links to Home, DiveLog, RedboxLog, Picture, ScreenDump, Firmware, and System. Below the navigation bar, the title "M28-102 : Redboxlog" is displayed. The main content is a table with four columns: Redboxlog, Events, Date, and Download. The table lists 16 log entries, each with a "Download" button. The log entries are as follows:

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 15:21:28 +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



PICTURE

In the picture tab it's easy to manage the pictures you want to store on your M28. Simply browse and upload images or delete unwanted images by pressing the delete button. Please note that a deleted picture will be lost and can not be recovered or undeleted.

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

M28-102 : Picture

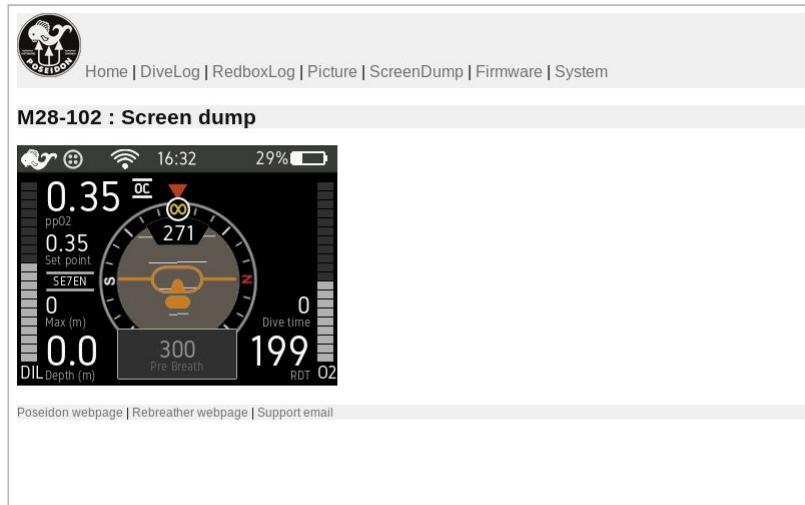
Select image to upload: No file selected.

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 (e.g., to provide to Poseidon technical support). When the M28 is connected to a PC/Mac or other device through the Wi-Fi, select the “Screen Dump” option...





FIRMWARE UPDATE

When the M28 is connected to a PC/Mac or other device through the Wi-Fi, the firmware on the M28 can be updated. Select the firmware tab and press the “Browse” button to select the correct 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.

The screenshot shows a web-based interface for managing Poseidon devices. At the top, there's a navigation bar with links to Home, DiveLog, RedboxLog, Picture, ScreenDump, Firmware, and System. Below the navigation bar, the title "M28-102 : Firmware" is displayed. A descriptive text block says: "Select a new firmware of type ".posm", download and when completed, reboot. At reboot time, which may take some time, the system will be updated. After it is done, it will reboot to use the new firmware." Underneath this, there's a label "Select firmware image to upload (upload will take some time):". Below this are two buttons: "Browse..." with the message "No file selected." and "Upload firmware file". At the bottom of the page, there are links to "Poseidon webpage", "Rebreather webpage", and "Support email".



SYSTEM

The system option allows you to turn the M28 power off, or reboot the M28 (e.g., to install new firmware).

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

M28-102 : System

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

[Power off](#)
[Reboot](#)
[Reboot to update](#)

Poseidon webpage | Rebreather webpage | Support email



Appendix 1 Symbols

Alarm and Warning symbols

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



Display states and views Connecting symbols



Land view



Bluetooth searching



Dive view



Bluetooth connect



Dive log



Bluetooth



Map



Bluetooth disabled



Picture



Wifi



Planner



IrDA



System



CAN connected



Settings



CAN connected, power input

Battery status



Level



CAN connected, power output



Level low



GPS not fixed



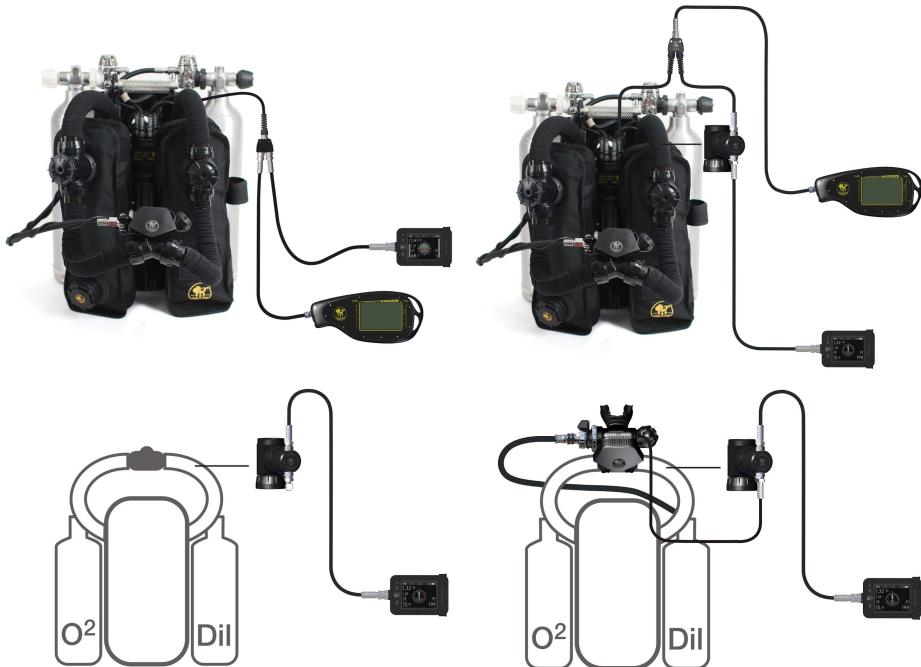
Charging



GPS fixed



Appendix 2 Connectivity example to Rebreather





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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