

advanSea

DEPTH S400



User manual ***Manuel utilisateur***

Other languages available on the CD-Rom or at :
Autres langues disponibles sur CD-Rom ou sur:

www.advantsea.com

Warning



S400 advanSea instruments comply with regulations in force.

Important

It is the owner's sole responsibility to ensure that this appliance is installed and used in such a way that will not cause any accidents, personal injury or property damage. The user of this appliance is solely responsible for observing safe boating practices.

Installation: if not installed correctly, the appliance will not operate to the best of its ability. In the event of doubt, please contact your advanSea retailer. Ensure that all holes made to mount the appliance are drilled in places without risk and that they do not weaken the structure of the boat. If in doubt, contact a qualified boat builder.

PLASTIMO SHALL NOT BE HELD LIABLE IN THE EVENT THE USE OF THIS APPLIANCE CAUSES ACCIDENTS, DAMAGE OR INFRINGEMENT OF THE LAW.

Reference language: this statement, instruction and user manuals and other information documents regarding the appliance, hereinafter referred to as "documentation", may be translated into other languages. In the event of a dispute regarding interpretation of the documentation, the French version shall be binding. This manual presents the procedures for installing and operating the appliance at the date of printing. AdvanSea reserves the right to modify the technical characteristics of the appliance without notice.

Copyright © 2009 Plastimo, France, all rights reserved. AdvanSea™ is a registered trademark of Plastimo.

Table of contents

1. Introduction

1.1. General presentation	p.3
1.2. Components supplied with your Depth S400	p.4
1.3. Technical characteristics	p.4

2. General operation

2.1. Powering on	p.6
2.2. Operation in normal mode.....	p.6
2.2.1. Selecting information on the display	
2.2.2. Selecting units of measurement	
2.2.3. Countdown timer	
2.2.4. Backlighting	
2.3. Alarms	p.8
2.3.1. Setting the echo sounder alarm thresholds	
2.3.2. Setting the battery alarm threshold	
2.4. Configuration.....	p.10
2.4.1. Keel offset	
2.4.2. Configuring the countdown timer	
2.4.3. Simulation mode	
2.4.4. Key beeps	
2.4.5. Resetting data in the memory	
2.5. Standby	p.13
2.6. Network operation (Bus AS-1)	p.13
2.7.1. Displaying multiple data	
2.7.2. Remote access	
2.7. Messages	p.14

3. Installation

3.1. NMEA 0183 interfacing.....	p.15
3.1.1. NMEA 0183 input interface	
3.1.2. NMEA 0183 output interface	
3.2. Mounting and connections.....	p.15
3.2.1. Mounting the Depth S400 unit	
3.2.2. Description of electrical connections	
3.2.2.1. Bus connection	
3.2.2.2. Sounder connection	
3.2.3. Connections	

4. Troubleshooting

p.18

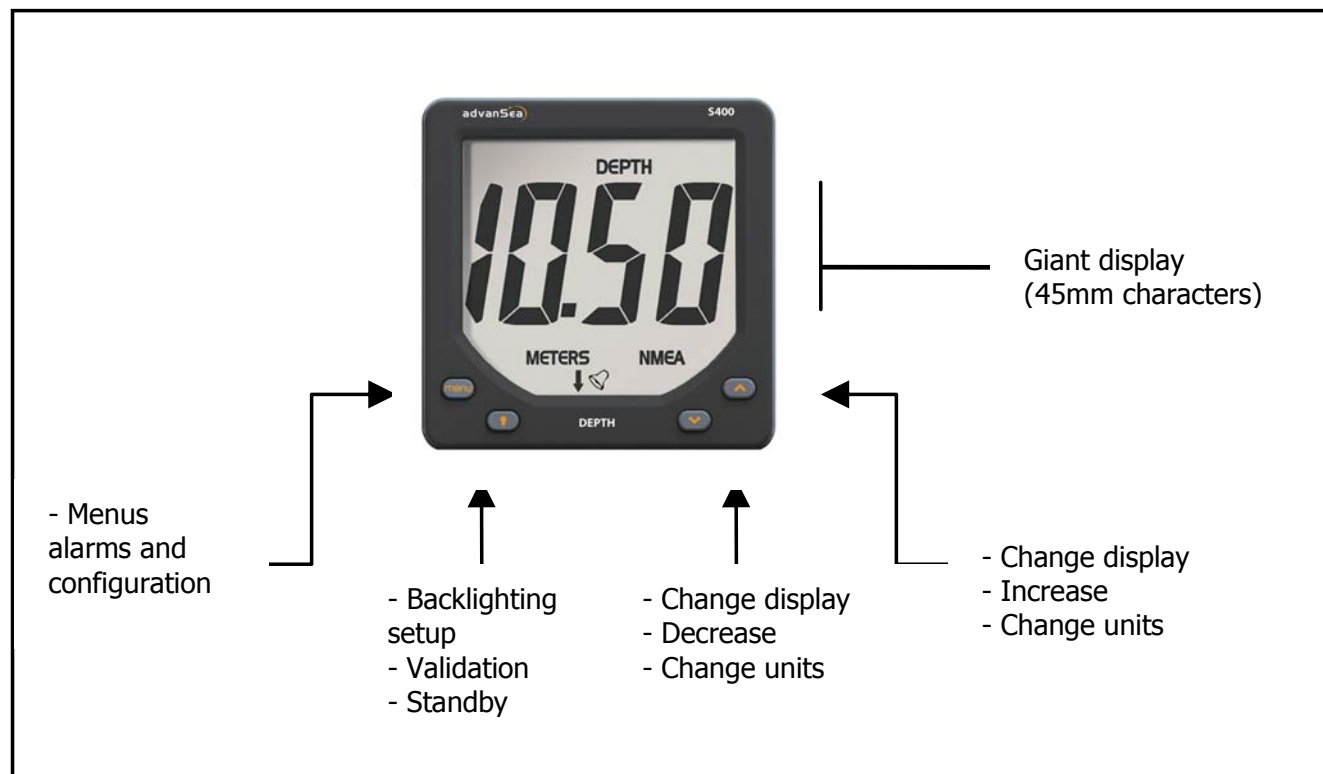
1 Introduction

Thank you for choosing an AdvanSea product. We are convinced your S400 instrument will provide you with many safe and happy years of navigation. This manual describes how to install and operate the Depth S400 AdvanSea.

1.1. General presentation

Description of the display:

The S400 unit is equipped with a large screen, and large characters for optimum readability from all angles of vision. The screen is treated against condensation to prevent the formation of mist. The screen and its keys are backlit with adjustable level.



The LCD screen on your Depth S400 is designed to:

- display the depth
- display the battery voltage
- acquire data through its NMEA input
- send data via its NMEA output
- exchange data on the AS-1 AdvanSea bus
- activate external lights and buzzers

To do so, it is supplied with 2 connection cables:

- 1 connector-free cable for the power supply, the bus, the NMEA IN & OUT, the alarm output
- 1 RCA cable for connection to the sounder sensor

The Depth S400 is part of the S400 advanSea family of navigation instruments, including instruments for measuring speed, depth, and wind. They may be connected together to form an integrated data system for a boat (see chapter 2.6).

1.2. Components supplied with your Depth S400

The Depth S400 comes with (as standard):

- protective cover
- user manual
- warranty card
- adhesive rear sealing joint for flush mounting

The Depth S400 does not come with sensors. You can order complete kits, or consult our website www.advantSea.com.

You will also find a complete list of accessories at www.advantSea.com

1.3. Technical characteristics

Measurement characteristics	
<i>Sounder:</i>	Measurement range: from 0.5 to 199 meters Operating frequency: 200 kHz Accuracy: ± 0.1 meter up to 5.0 meters and $\leq 2\%$ beyond 5.0 meters (this accuracy is given for a constant sound speed in water of 1490 m/s) Resolution: 0.1 from 0 to 19.9 and 1 beyond Configurable offset: ± 9.9 meters
<i>Battery voltage:</i>	Measurement range: from 10.0V to 16.5V Accuracy: $\pm 0.2V$ Resolution: 0.1V

Electrical specifications	
Buzzer output (green wire):	Switched to ground, open collector, 30 V DC and 300 mA max. It is recommended to protect this output with a 300 mA fuse.
NMEA 0183:	Version 3.01, asynchronous 4800 baud, 8 bit link, without parity, 1 stop bit. The electrical levels used on the NMEA output are referenced to the ground and vary according to the system's voltage supply. On powering on, a proprietary NMEA frame <i>\$PNKEV,DEPTH V1.00*4E</i> is sent to identify the transmitter.
Communication bus:	Half-Duplex 38400 baud link on one wire. Words are sent on 8 bits, without parity with 1 stop bit. The number of devices connected to the bus is limited to 20.
Power supply:	9 volts to 16.5 volts / Consumption <150m
Mechanical specifications	
Overall dimensions	Unit size 112mm x 112mm depth 28mm Mounting on flat wall by means of a threaded drum of diameter 49mm, step 1.5mm and length 35mm and a plastic nut diameter 80 mm
Environment	IP66 Front panel IP40 rear panel
Operating temperature	From -10°C to +50°C
Storage temperature	From -20°C to +60°C



2 General operation

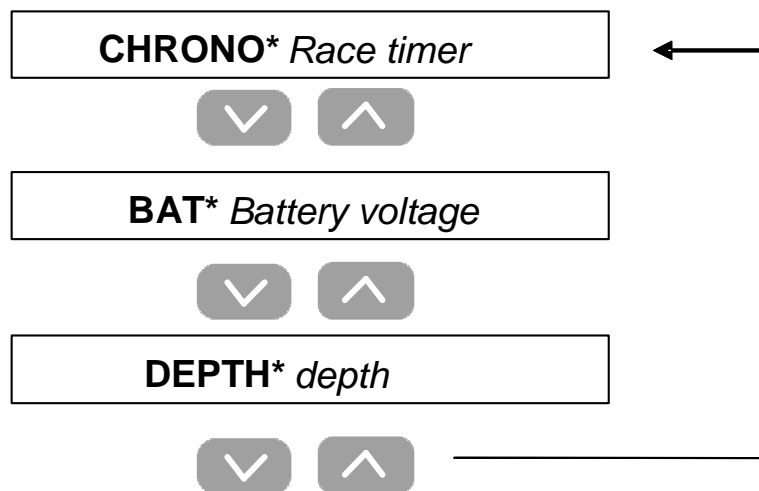
2.1. Powering on

The Depth S400 display does not include an integrated switch. The unit is powered by a 12 V DC supply on the red (+) and black (-) wires. When stopped, all settings are memorized.

2.2. Operation in normal mode



2.2.1. Selecting information on the display

The  and  keys are used to select various data in the main display.
Key operation:



* Label displayed on LCD

2.2.2. Selecting units of measurement



To change the unit of measurement for some data, press at least 2 seconds on the  or  keys.

The following table summarizes the various units displayed according to the data selected:

Data	Unit of measurement	
Battery voltage	V	
Depth	Feet	Metres



In bold, default units.

2.2.3. Countdown timer

Once CHRONO is displayed, trigger it by pressing simultaneously on the  +  keys.

The countdown starts from the data displayed (which can be configured between 1 and 10 minutes, see menu paragraph 2.4.2.). A long beep signals when the countdown switches to the full minute. The end of the countdown is signalled by a short beep every second for the last 5 seconds followed by a long beep to mark the end of the countdown.




When the countdown is finished, the countdown timer counts the navigation time in hours/minutes (with two points flashing per second).

Press again simultaneously for at least 2 seconds on the  +  keys during the countdown to stop it and reset the display to the selected value.


2.2.4. Backlighting

The display and the 4 keys are backlit, with 4 levels of intensity. Level "0" corresponds to backlighting switched off.


To control backlighting:


Press the  key to display the backlighting page, then the  and  keys to adjust the lighting level from 0 to 4.



Pressing again on the  key send the lighting level on the bus to control backlighting on other device displays.

2.3. Alarms

The  icon is lit when at least one alarm has occurred on one item of data managed by the DEPTH display. A sensor alarm appears when it is activated (different from 0) and the measurement has exceeded the high or low threshold previously defined. This alarm is then shown by:

- The flashing icon 
- The data concerned by the alarm flashing,
- Automatic lighting of the LCD backlighting to its highest level,
- The internal buzzer sounds,
- The buzzer or the external lights are activated.

An alarm can be cancelled and inhibited for 3 minutes by pressing on any key on the keypad. After this period, a new alarm may be triggered when the measurement sensor once again exceeds the programmed thresholds.

Several devices interconnected on the bus, can be used to relay a sensor alarm to other compatible displays present on the network. Example: a depth alarm can be viewed on all "DEPTH" displays present on board.

The Depth can be monitored by configuring high and low alarm thresholds.

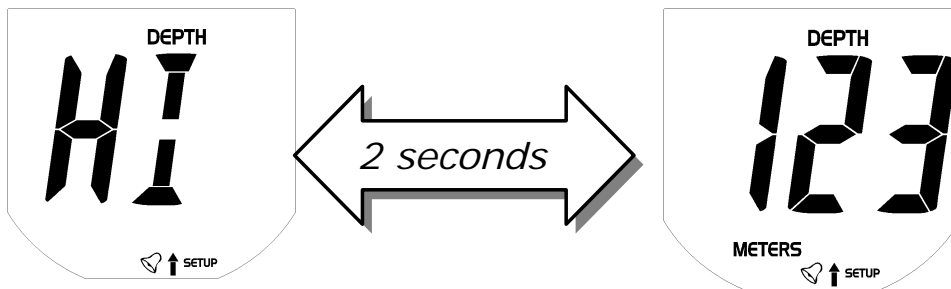
The Battery voltage data can be monitored by configuring the low threshold alarm.

When selecting an alarm, the DEPTH unit will alternatively display the alarm name and its current value (every 2 seconds). When changing the alarm value, the data will be fixed on the display.

2.3.1. Setting the depth alarm thresholds

Deep depth alarm setting:

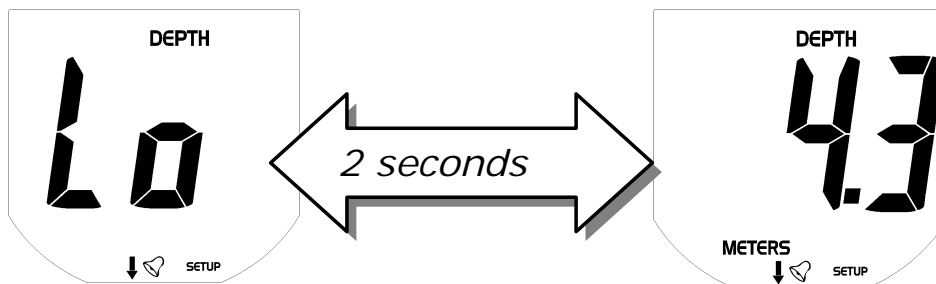
Press **menu**, then once again on **menu** to display the " **DEPTH HI** " high threshold page for the sounder, then adjust the required value of the threshold using the **^** and **v** keys.



Press **lightbulb** to exit setup mode, or time out after 10 seconds.

Shallow depth alarm setting:





Press **menu**, then once again on **menu** to display the " **DEPTH Lo** " low threshold page for the sounder, then adjust the required value of the threshold using the **^** and **v** keys.

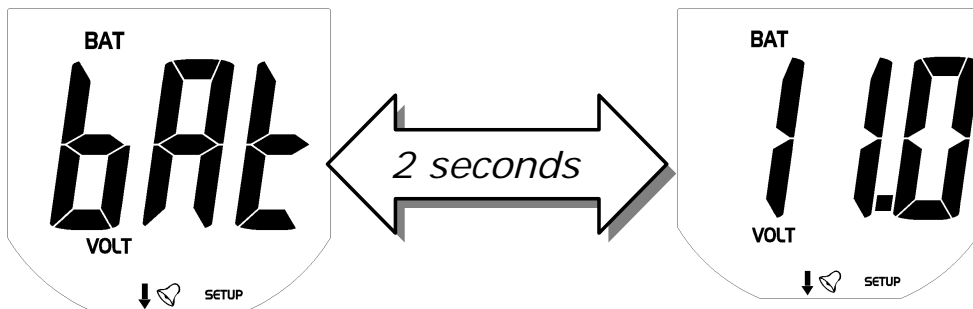



Press **lightbulb** to exit setup mode, or time out after 10 seconds.

2.3.2. Setting the battery alarm threshold

The battery alarm allows you to monitor the supply voltage to your installation. This is important, particularly for good sounder performance.

Press , then once again on  to display the "bAt" low threshold page, then adjust the required value of the threshold using the  and  keys.



Press  to exit setup mode, or time out after 10 seconds.

2.4. Configuration





To identify the data that can be configured, the DEPTH unit will alternatively display the data name and its current value (every 2 seconds). When changing the setting value, the data will be fixed on the display.

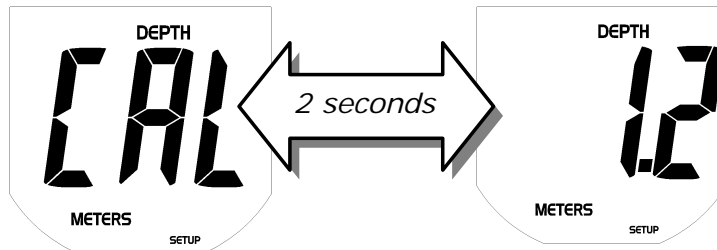
2.4.1. Keel offset


The depth displayed on the DEPTH display represents the distance between the probe mounted on the hull and the bottom, plus or minus the keel offset:

- For a positive offset, the depth is measured from a point located above the probe (Depth = distance between probe and bottom + Offset).
- For a negative offset, the depth is measured from a point located below the probe (Depth = distance between probe and bottom - Offset).

To adjust this offset:





Press  for 2 seconds, then on  until the "CAL" offset page is displayed, then adjust the required value using the  and  keys.

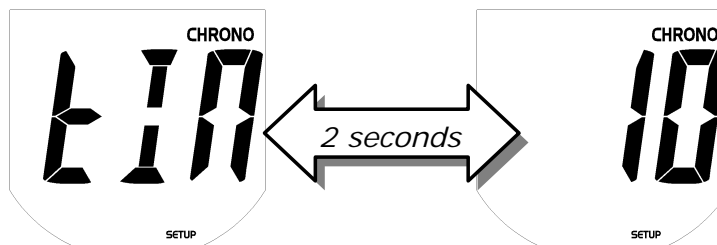



Press  to exit setup mode, or time out after 10 seconds.

2.4.2. Configuring the countdown timer

The duration of the countdown can be configured to the nearest minute, between 1 and 10 minutes.

Press  for 2 seconds, then on  until the "tim" setup page is displayed, then adjust the required value using the  and  keys.







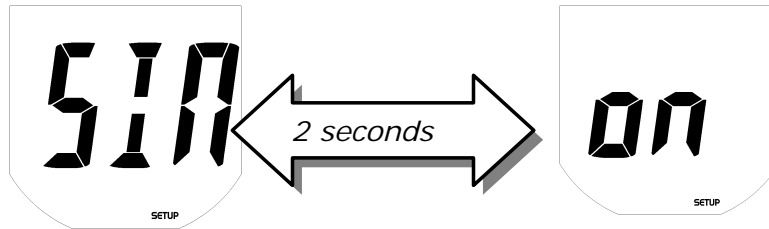
Press  to exit setup mode, or time out after 10 seconds.


2.4.3. Simulation mode

Simulation mode can be accessed via the Configuration menu. This mode is shown by the icon **SIMUL** flashing on the LCD and remains active after power has been cut off. It may be used for sales demonstrations of the product and features the following functions:

- Displays a coherent bottom profile (in distance and variation),
- Displays the real supply voltage,
- Transmits simulated data via the NMEA output.
- Transmits simulated data via the communication bus.





Press  for 2 seconds, then  until the "SIMUL" page is displayed, then activate (on) or deactivate (OFF) simulation using the  and  keys.

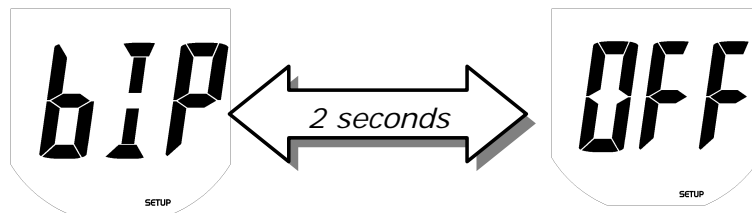



Press  to exit setup mode, or time out after 10 seconds.

2.4.4. Key beeps

The key beeps can be activated or deactivated.

Press  for 2 seconds, then  until the "bIP" page is displayed, then activate (on) or deactivate (OFF) the beep using the  and  keys.







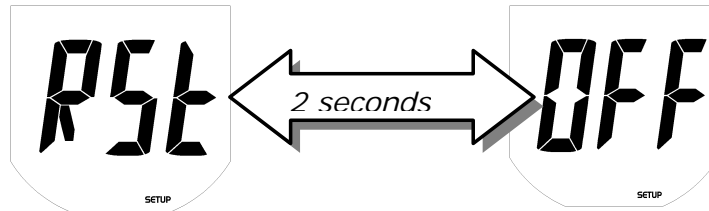
Press  to exit setup mode, or time out after 10 seconds.


2.4.5. Resetting data in the memory

At any time, the memory of the Depth display can be returned to factory settings. To do so, a memory reset command is accessible in the menu. The following parameters are restored in the memory:


- Depth unit: Metres
- Keel offset: 0
- Depth alarms: deactivated, high and low threshold at 0
- Battery alarm: deactivated, low threshold at 0
- Countdown timer init.: 10 minutes
- Simulation mode: deactivated
- Backlighting level: 0 (OFF)

Press  for 2 seconds, then  until the "Rst" page is displayed, then activate (on) or deactivate (OFF) the reset using the  and  keys.



Press  to exit setup mode, or time out after 10 seconds.

2.5. Standby

To save energy on board, the "DEPTH" display can be placed on standby by pressing for 5 seconds on the  key.

Standby mode switches off backlighting, the screen, stops sensor measurement and processing of NMEA input and output interfaces. Only the vital bus management and keyboard functions remain active. Active displays present on the bus indicate measurement impossible with an OFF icon instead of the data.

Standby mode is not saved. **At any time, simply pressing one of the four keys or cutting off the power stops standby mode and returns all device functions to normal.**

2.6. Network operation (Bus AS-1)

The AS-1 bus is used to connect products in the advanSea family via a rapid and reliable exchange protocol. Only the bus wires need to be connected. No start-up settings are required.

The communication protocol allows for multiple data exchange at previously defined transmission speeds.

Thus, it is possible:

- to exchange several similar measurements on the same bus, for example: several sounder sources.
- to change the units, the alarm threshold values or to calibrate from a single instrument.
- to activate or deactivate alarms from a single instrument.

The protocol allows exchange of similar data from different sources (direct measurement from the sensor, or from the bus or via NMEA).

2.6.1. Displaying multiple data

In order to display multiple data, a repeater instrument (without a sensor) should be differentiated from a measurement instrument (with a sensor or receiving NMEA data). A repeater instrument can display maximum 2 multiple data available on the bus (for example: port depth and starboard depth). If there are more than 2 multiple data present on the bus (for example 3 depth sensors), the repeater will only read the information from the 2 measurement instruments with the lowest serial numbers.

A measurement instrument (with a sensor or receiving NMEA data) will only display the data from its own sensor or from the NMEA source received, even if other similar data are available on the bus.

2.6.2. Remote access

A repeater instrument (without a sensor) can read and write, via AS-1 bus, all the calibration parameters or the alarm thresholds from the same type of measuring instrument. Thus, it is possible to calibrate the depth from the DEPTH display connected to the bus.

System limitation:

For complex installations, with several similar measurement instruments, it is impossible to calibrate alarms from a repeater instrument. In this case, these settings can only be adjusted from the measurement unit (display to which the sensor is connected).

2.7. Messages

There are 3 event messages which automatically disappear after 5 minutes or simply by pressing a key:

Err Bat Displayed each time a power drop near the 9V threshold is detected (safety threshold). Returns to normal if the battery exceeds this security level after a few seconds.

Err MEM Displayed on powering on if a memory malfunction occurs.

Err Bus Displayed at the first detection, after powering on, if a bus wire is pinched (incorrect wiring).

3 Installation

3.1. NMEA 0183 interfacing

The Depth S400 display has one NMEA 0183 input and one output, non shielded. The NMEA 0183 frame format recognized by the depth display complies with the V3.01 standard of January 2002.

3.1.1. NMEA 0183 input interface

The NMEA 0183 input interface can simultaneously acquire the physical measurement listed in the table below. To avoid confusing the same data from different frames, a 2-level priority management algorithm is used to prioritize some frames over others. Example: if the frames DPT and DBT are received, only the DPT frame will be decoded to receive the depth data.

No	NMEA data	Frames used	
		Priority 1	Priority 2
1	Depth	DPT	DBT

Note: The data from the NMEA input are displayed with the **NMEA** icon.

3.1.2. NMEA 0183 output interface

The depth S400's NMEA output emits at a speed of 1 Hz the 5 frames below:

No	NMEA frames	Data transmitted	
1	DPT	Depth	--
2	DBT	Depth	--

Note: The NMEA 0183 output does not repeat the frames received on its input.

3.2. Mounting and connections

3.2.1. Mounting the Depth S400 unit

The Depth unit must be mounted in a visible location and protected from any risk of shocks. It should be placed more than 10cm from a compass and more than 50cm from radio or radar antenna, far from all engines, fluorescent light, alternators and radio or radar transmitters. It should be accessible from the rear; minimum depth cabin side 50mm. The rear panel of the unit should be protected from humidity. The mounting surface should be flat and of thickness less than 20mm.

- Drill a hole 50mm in diameter at the chosen location
- Unscrew the nut located on the rear of the unit
- Remove the adhesive protection around the unit
- Insert and position the unit in the mounting hole
- Screw back the nut

3.2.2 . Description of electrical connections

3.2.2.1. Bus connection

The bus link is provided by a 7-wire shielded cable, arranged as follows:

- Red +12V DC
- Black GND / NMEA (-) Input and Output
- Orange bus
- Yellow NMEA input (+)
- White NMEA output (+)
- Green Buzzer and external light
- Blue NC

3.2.2.2. Sounder connection

Connection to the sounder sensor is via a 30 cm coaxial cable and an overmoulded RCA connector.

3.2.3. Connections

- Connect the sounder sensor to the RCA connector
- Connect the - power to the black wire without connector and the red wire to the + power via a switch and a 1A fuse.
- For a system comprising several "Advanseas" instruments, connect all the orange bus wires from each instrument together.
- Connect an NMEA source (GPS for example) to the yellow wire for the +nmea and the black for the – nmea

See diagram below:



transducer



1:



NMEA input

4. Troubleshooting

This troubleshooting guide assumes that you have read and understood this manual. It is possible in many cases to solve difficulties without the need for the after-sales service. Please read this chapter carefully before contacting your AdvanSea retailer.

1. The unit will not power on:

- Fuse melted or circuit breaker triggered.
- Voltage too low
- Power cable disconnected or damaged.

2. Wrong or incoherent depth reading:

- The unit cannot detect the sea bottom momentarily, because the depth is too high or too low, due to lack of water clarity, reverse manoeuvring or rough seas.
- Sensor cable disconnected or damaged.
- Dirty or damaged sensor. Check that the sensor is not covered with too thick a coat of paint.
- Sensor incorrectly mounted or not sufficiently immersed.
- Ultrasound signal interference from another sensor.
- Electrical interference. Review the installation.

It is recommended to do a test with another working sensor (hold it under water near the boat) to check if the sounder and the on-board sensor are working correctly.

3. SIMU flashing on the screen, with incoherent readings displayed.

- Unit in simulation mode (see 2.4.3).

If the problems continue, we recommend you contact your advanSea retailer or our customer support department. All contacts can be found at www.advalsea.com.

● FRANCE & SWITZERLAND

Plastimo France

15 rue Ingénieur Verrière
56100 LORIENT - FRANCE
Tél : +33 (0)2 97 87 36 36
Fax : +33 (0)2 97 87 36 49
e-mail : plastimo@plastimo.fr

● UNITED KINGDOM

Navimo UK Ltd

Hamilton Business Park
Botley road – Hedge End
Southampton, Hants. SO30 2HE
Ph: +44 1489 778 850
Fax: +44 870 751 1950
E-mail: sales@navimo.co.uk

● GERMANY

Navimo Deutschland

15 rue Ingénieur Verrière
56100 LORIENT - FRANCE
Tél : +33 (0)2 97 87 36 11
Fax : +33 (0)2 97 87 36 29
e-mail:
sales.international@plastimo.fr

● ITALIA

Navimo Italia /Nuova Rade Spa

Via del Pontasso 5
16015 Casella Scrivia (GE)
Ph: +39 010 968 011
Fax: +39 010 968 0150
E-mail: info@nuovarade.com

● SWEDEN/DENMARK/ NORWAY / FINLAND

Navimo Nordic AB

Lundenvägen 2
473 31 HENÅN - SWEDEN
Ph: +46 (0)304 360 60
Fax: +46 (0)304 307 43
E-mail: info@navimo.se

● NETHERLANDS & BELGIUM

Navimo Holland Bv

Industrieweg 4
2871 JE SCHOONHOVEN
THE NETHERLANDS
Ph: +31 (0)182 320522
Fax: +31 (0)182 320519
E-mail: info@plastimo.nl

● SPAIN

Navimo España SA

Polígono industrial de Cabrera
Calle Industria s/n
08349 CABRERA DE MAR Barcelona
Ph: +34 93 750 75 04
Fax: +34 93 750 75 34
E-mail: plastimo@plastimo.es

● PORTUGAL

Siroco Representações Náuticas S.A.

Zona industrial da Abrunheira,
Armazem 2
2710-089 ABRUNHEIRA SINTRA
Ph: +351 21 915 4530
Fax: +351 21 915 4540
e-mail: Plastimo@plastimo.co.pt

● GREECE

Plastimo Hellas

1, 28th Octovriou str.& Kalogeropulou str.
20 200 KIATO KORINTHIAS
Tel/Fax: +30 27420 20 644
E-mail : plastimo.hellas@plastimo.fr

● OTHER COUNTRIES

Plastimo International/Export

15 rue Ingénieur Verrière
56100 LORIENT -FRANCE
Tél : +33 (0)2 97 87 36 36
Fax : +33 (0)2 97 87 36 49
e-mail : sales.international@plastimo.fr

advanSea

S400 Series



GPS Combo

advanSea™ is a registered trademark of

