



## WIND/WIND-a 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](http://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.

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# 1 Introduction

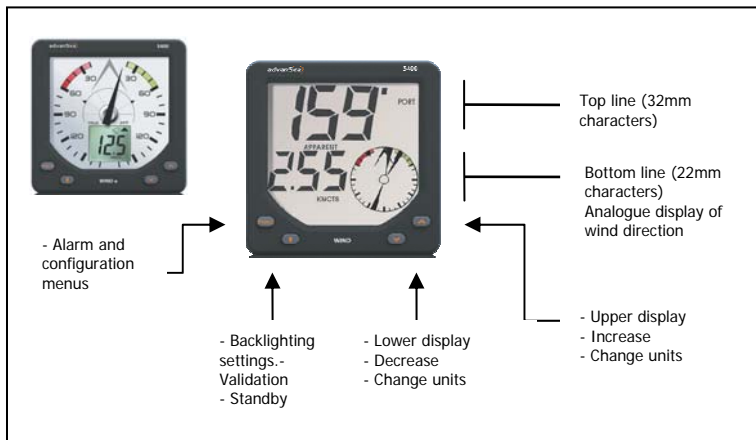
Thank you for choosing an AdvanSea product. We are convinced your S400 instrument will provide you with many safe and happy years of navigation. This manual describes how to install and use WIND and WIND-a S400 AdvanSea displays.

## 1.1. General presentation

### Description of displays:

The S400 units are equipped with a large screen, and large characters for optimum readability from all angles of vision. The analogue WIND-a display offers optimal reading.

The window of the S400 displays is treated against condensation to prevent the formation of mist. The screen and its keys are backlit with adjustable level.



The "WIND/WIND-a" display is designed to:

- Display the apparent wind angle
- Display the apparent wind speed
- Calculate and display the true wind angle (if connected to boat speed)
- Calculate and display the true wind speed (if connected to boat speed)
- Calculate and display the max. apparent wind speed
- Calculate and display the max. true wind speed (if connected to boat speed)
- Calculate and display the VMG (if connected to boat speed)

- Acquire data through its NMEA input
- Send data via its NMEA output
- Exchange data on the Plastimo bus
- In the event of an alarm, 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 LT8 cable for connection to the wind vane-gauge sensor

The WIND/WIND-a is part of the 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 WIND/WIND-a

The WIND/WIND-a S400 display comes with (as standard):

- protective cover
- user manual
- Warranty card
- Adhesive rear sealing joint for flush mounting

The WIND/WIND-a S400 is supplied with or without a wind sensor. You can order complete kits, or consult our website [www.advansSea.com](http://www.advansSea.com).

You will also find a complete list of accessories at [www.advansSea.com](http://www.advansSea.com)

## 1.3. Technical characteristics

Measurement characteristics	
<i>Wind vane:</i>	Display range: 0° to 180° port/starboard or 0° / 359° Resolution: 1° on the digital display, 10° on the analogue display Configurable offset: ±180°
<i>Anemometer:</i>	Display range: from 0 to 199 knots Resolution: 0.1 from 0 to 19.9 knots and 1 above Calibration on 1 measurement point
<i>Battery voltage:</i>	Measurement range: <b>from 10.0V to 16.5V</b> Accuracy: <b>±0.2V</b> Resolution: <b>0.1V</b>
Electrical specifications	
<i>Buzzer output (green wire):</i>	Switched to ground, open collector, 30 V DC and 300 mA max. It is recommended to protect this output with a 300 mA fuse.
<i>NMEA 0183:</i>	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 \$PNKEV, WIND V1.2*25 is sent to identify the transmitter.

<b>Communication bus:</b>	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.
<b>Power supply:</b>	9 volts to 16.5 volts / Consumption <150Ma
<b>Mechanical specifications</b>	
<b>Overall dimensions</b>	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
<b>Environment</b>	IP66 Front panel IP40 rear panel
<b>Operating temperature</b>	From -10°C to +50°C
<b>Storage temperature</b>	From -20°C to +60°C

## 2 General Operation

### 2.1. Powering on

The WIND/WIND-a 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 the type of wind

Select the apparent or true wind data (in this case the boat speed must be received either by the communication bus or by the NMEA input interface) by pressing

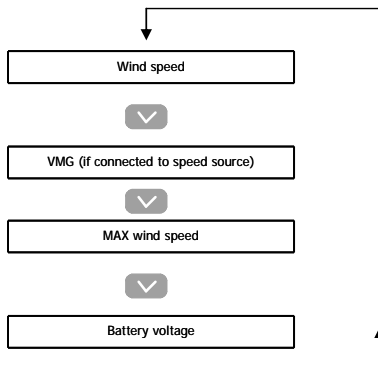
An icon "APPARENT" or "TRUE" is displayed to show the different type of wind display.

The WIND/WIND-a display can only display the true wind if it is connected to a speedometer or to a GPS indicated the boat speed.

#### 2.2.2. Selecting information

The key is used to select various data in the lower line.

Key operation:





### 2.2.3. Resetting the MAX wind speed

To reset the maximum apparent wind speed, display the data on the lower display and press and simultaneously for 2 seconds.

### 2.2.4. Measurement units

It is possible to choose from several measurement units to display apparent wind speed, max. apparent wind speed, true wind speed and VMG. The table below summarizes the various units displayed:

Data	Unit of measurement			
Apparent wind speed				
Max. apparent wind speed				
True wind speed	Knots	m/s	Miles/h	Beaufort
Max. true wind speed				
VMG	Knots	km/h		Miles/h

#### To change a unit of measurement:

On the lower display, select the information whose unit of measurement you want to change, and press for 2 seconds.

The units for "apparent wind angle" and true wind angle" are always displayed in degrees, and the battery voltage is always displayed in volts.

### 2.2.5. Setting the 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 to display the backlighting page, then press to set the backlighting level from 0 to 4.


Pressing again on the key sends the lighting level on the bus to control backlighting on other device displays, or automatic time out after 10 seconds for local setting.



## 2.3. Alarms

The  icon is lit when at least one alarm has occurred on one of the data managed by the WIND display.

A sensor alarm appears when it is activated (different from 0) and the measurement has exceeded the upper or lower 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 (if connected) 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: an apparent wind speed alarm can be viewed on all "WIND" displays present on board.

A high threshold can be set on the "apparent wind speed" and a low threshold on "battery voltage".

### 2.3.1. Setting the apparent wind speed alarm threshold.





To set the high wind speed alarm:

Press , then again on  until the wind speed alarm page "SPd" is displayed, and adjust the value using the  and  keys.




### 2.3.2. Setting the battery voltage alarm threshold.

To set the battery voltage alarm threshold:

Press , then again on  until the battery voltage alarm page "bAt" is displayed, and adjust the value using the  and  keys.



Press 2 seconds  to exit setup mode, or automatic timeout after 10 seconds.

## 2.4. Configuration

### 2.4.1. Filtering

A filter coefficient is available to the user for the apparent speed and angle. This coefficient acts simultaneously on the wind indicator's angle measurement and on the anemometer speed. This parameter can be adjusted to between 1 and 30 seconds.

To adjust the filter:

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

Press to exit setup mode, or automatic timeout after 10 seconds.



### 2.4.2. Calibrating the apparent wind speed (slope)

The wind speed was calibrated accurately during manufacture of the unit. However, if you believe it is wrong, you can recalibrate it.

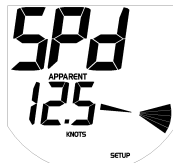
To calibrate the apparent wind speed, replace the speed measured by the wind vane-gauge sensor in the calibration menu, with the speed estimated by the user (in parallel with another instrument, hand wind gauge, etc.).

It is not possible to enter a calibration value when the apparent wind speed is equal to "0".

To calibrate the wind speed:

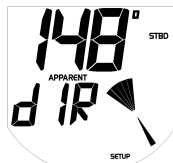
Press for 2 seconds, then again on until the wind speed calibration page "SPd" is displayed, and adjust the value using the and keys.

Press to exit setup mode, or automatic timeout after 10 seconds.



### 2.4.3. Calibrating the apparent wind angle (offset)

The apparent wind angle is calibrated by replacing the wind angle measured by the sensor with the wind angle estimated by the user.



To calibrate the wind angle:

Press **menu** for 2 seconds, then again on **menu** until the wind indicator calibration page "dir" is displayed, and adjust the value using the **^** and **v** keys.

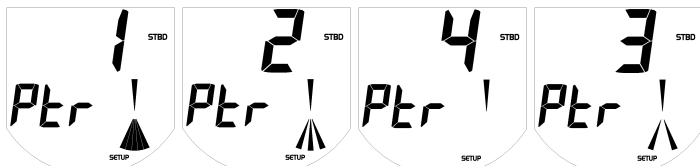
Press **lightbulb** to exit setup mode, or automatic timeout after 10 seconds.

#### 2.4.4. Selecting the pointer

1 of the 4 available pointers can be selected to display the apparent wind angle in analogue form.

To set the pointer:

Press for 2 seconds on **menu**, then on **menu** until the pointer setup page "Ptr" is displayed, then adjust the required value using the **^** and **v** keys.



Press **lightbulb** to exit setup mode, or automatic timeout after 10 seconds.

#### 2.4.5. Simulation mode

Simulation mode is used to display coherent data which are simulated and not measured by the sensors. When this mode is in operation, a **SIMUL** icon appears flashing at the bottom of the display.

In simulation mode, the following data are available:

- An apparent wind speed and angle,
- A true wind speed and angle,
- the real supply voltage,
- Transmission of simulated data via the NMEA output,
- Transmission of simulated data via the communication bus.

To activate the simulation mode:

Press for 2 seconds, then again on until the simulation page « SIM » is displayed, then press to switch "ON" and to switch "OFF".

Press to exit setup mode or automatic timeout after 10 seconds.



### 2.4.6. Key beeps

The key beeps can be activated or deactivated.

To activate or deactivate the key beeps:

Press for 2 seconds, then again on until the beep page "bIP" is displayed, then press to switch "ON" and to switch "OFF".

Press to exit setup mode, or automatic timeout after 10 seconds.



### 2.4.7. Resetting data in the memory

At any time, the memory of the 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:

- |  |                             |
|--|-----------------------------|
| • Anemometer unit:                         | Knots                       |
| • Wind indicator and anemometer filtering: | 10 seconds                  |
| • Wind calibration coefficient:            | slope at 1                  |
| • Gauge calibration coefficient:           | Offset to 0                 |
| • Wind and battery alarms:                 | deactivated, threshold at 0 |
| • Wind indicator angle (180/360):          | 0/180° port, starboard      |
| • Simulation mode:                         | deactivated                 |
| • Backlighting level:                      | 0 (OFF)                     |


To reset the memory:

Press for 2 seconds, then again on until the reset page "RSt" is displayed, then press or to activate the reset.

Press to exit setup mode, or automatic timeout after 10 seconds.



## 2.5. Standby

To save energy on board, the "WIND" display can be placed on standby by pressing for 2 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 startup 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 anemometer 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: wind vane-gauge sensor no.1 and wind vane-gauge sensor no.2). If there are more than 2 multiple data present on the bus (for example 3 wind vane-gauge 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 measurer instrument. Thus it is possible to act on the Offset of the WIND (or WIND-a) display wind indicator connected on 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). Return 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 Wind display has one NMEA 183 input and one output, non-shielded. The NMEA frame format recognized by the WIND display complies with the V3.01 standard of January 2002.

#### 3.1.1. NMEA 0183 input interface

The NMEA 183 input interface can simultaneously acquire the 4 physical measurements listed in the table below. To avoid confusing the same data from different frames, a 3-level priority management algorithm is used to prioritize some frames over others.

No	NMEA data	Frames used		
		Priority 1	Priority 2	Priority 3
1	Boat speed	VHW	--	--
2	Speed over ground	VTG	RMC	--
3	Apparent wind angle	MWV	VWR	--
4	Apparent wind speed	MWV	VWR	--

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

#### 3.1.2. NMEA 0183 output interface

The NMEA output interface of the WIND display emits the following 3 frames at a rate of 1 Hz:

No	NMEA frames	Data transmitted	
1	VPW	VMG	--
2	MWV	Apparent wind angle	Apparent wind speed
3	VWR	Apparent wind angle	Apparent wind speed

Note: The NMEA output does not repeat the frames received on its input. Although the VWR frame is obsolete (replaced with the MWV in V3.01), it is emitted to ensure compatibility with older generation instruments.



## 3.2. Mounting and connections

### 3.2.1. Mounting the WIND (WIND-a) S400 unit

The Wind 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. Wind vane-anemometer connection

The connection with the wind vane-gauge sensor is provided via a shielded cable fitted with an 8-pin connector with bayonet locking.



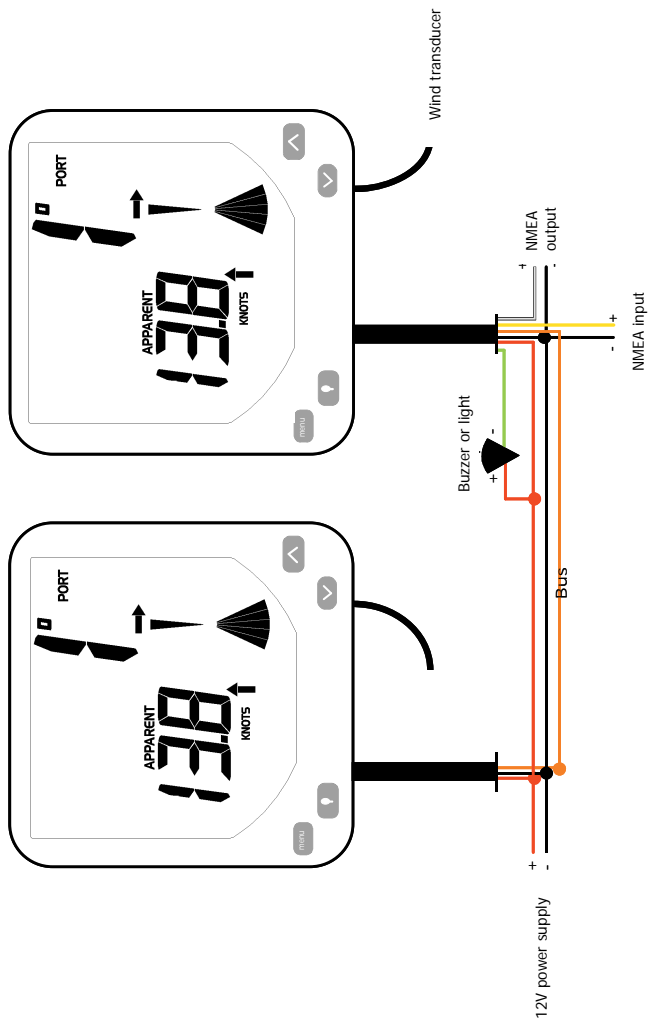
Connector pins:

1: Bare	Ground
2: Red	+12V DC
3: Brown	Wind indicator
4: White	NC
5: NC	
6: Green	Anemometer
7: NC	
8: NC	

### 3.2.3. Connections

- Connect the wind vane-gauge sensor to the LT8 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:



## 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. **Wind speed or direction reading wrong or incoherent:**
  - Incorrect calibration of wind speed.
  - Incorrect calibration of wind alignment.
  - Masthead sensor cable disconnected or damaged.
  - Masthead dirty or damaged.
  - Electrical interference. Review the installation.
3. **SIMU flashing on the screen, with incoherent readings displayed.**
  - Unit in simulation mode (see 2.4.7).

If the problems persist, we recommend you contact your retailer.

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# advanSea

## S400 Series



## GPS Combo

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