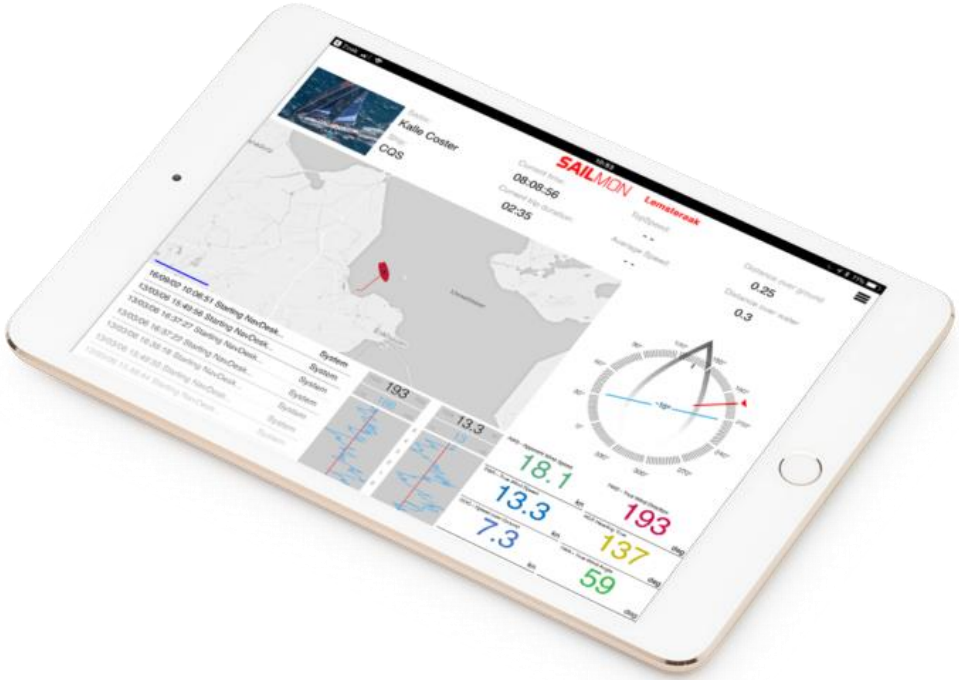


SAILMON

OPERATORS MANUAL

2023 – VERSION 3.5.2

Table of Contents

1. BEFORE YOU GET STARTED

ABOUT THIS GUIDE

As Sailmon is continuously improving their products, we retain the right to make changes to our products at any time which may not be reflected in this version of the user guide.

This User Guide has been made to help users gain a better and more complete understanding of how to use NavDesk to get the most out of your Sailmon on board System.

IMPORTANT: Where the addition ***E4 Black*** is mentioned this feature is only available for the E4 Black version. To upgrade contact Sailmon Support.

FEATURES

With v3.5.2 we have introduced special features which can be acquired separately for all models of E4.

- E-Telltales implementation
- Modbus TCP/IP client and server (Standard in E4 black)
- Scripting
- Audible alarms
- Pagebuilder

Contact us if you want more information

BASIC SAILMON ARCHITECTURE

All Sailmon processors and displays communicate over Ethernet. Basic knowledge of Ethernet architecture (IP addresses, DHCP) is assumed.

DISCLAIMER

Sailmon disclaims all liabilities for any use of this product in a way that may cause accidents, damage or that may violate the law.

Sailmon Instruments are an aid to navigation but do not replace conventional navigation. It is the owner and user's responsibility to practice safe boating practices and navigation.

All precautions should be taken to ensure that the boat and users are not placed into any danger.

CALIBRATION

The Sailmon System is an electronic aid and has been designed to assist in navigation and reading measurement values. Incorrect calibration can lead to false and inaccurate readings placing the yacht in possible danger.

2. USING NAVDESK

NavDesk is our intuitive user interface for controlling your E4 Processor and displays. Your NavDesk System can be linked to your Sailmon Logs account, so all your data will be logged and stored in the cloud.

2.1 SETTING UP NAVDESK

NavDesk can be used on a variety of devices, to control and setup your Sailmon System. Below are details of how to obtain and get NavDesk up and running.

PC/MAC

1. Download the latest Sailmon Software distribution for PC from our website: https://sailmon.com/support-articles/software-updates/
2. Download the individual Sailmon programs for Mac https://sailmon.com/support-topics/others/
3. Install the Software package on your PC/Laptop. This will install:
    a. NavDesk
    b. Polar Tool
    c. Screenview
    d. SailmonTool
4. Open NavDesk
    a. Ensure your Laptop/Tablet is on the same network as your Sailmon System.
5. NavDesk will then automatically connect to your Sailmon System.
6. Refer to the FAQ section for troubleshooting commissioning.

APP STORE

1. Open the App/Playstore on your iOS or Android device.
2. Search for NavDesk on the App Store.
3. Download the NavDesk App.
4. Ensure your Device is on the same network as your Sailmon System.
5. Upon opening the NavDesk app, it will automatically connect to you Sailmon System.
6. Refer to the FAQ section for troubleshooting commissioning.

UPDATING

All Sailmon Equipment improves over time through automatic over-the-air software updates. The updates will only happen when your system is online. Always make sure your system is on the latest software, as the applications in the App store and Play store might not be compatible with older versions.

2.2 NAVIGATING NAVDESK

MISSION CONTROL DASHBOARD

The main mission control screen gives you a quick overview of all relevant data, which can be customised. The SAILMON Logo at the top of the screen will always bring you to the Mission Control Dashboard.

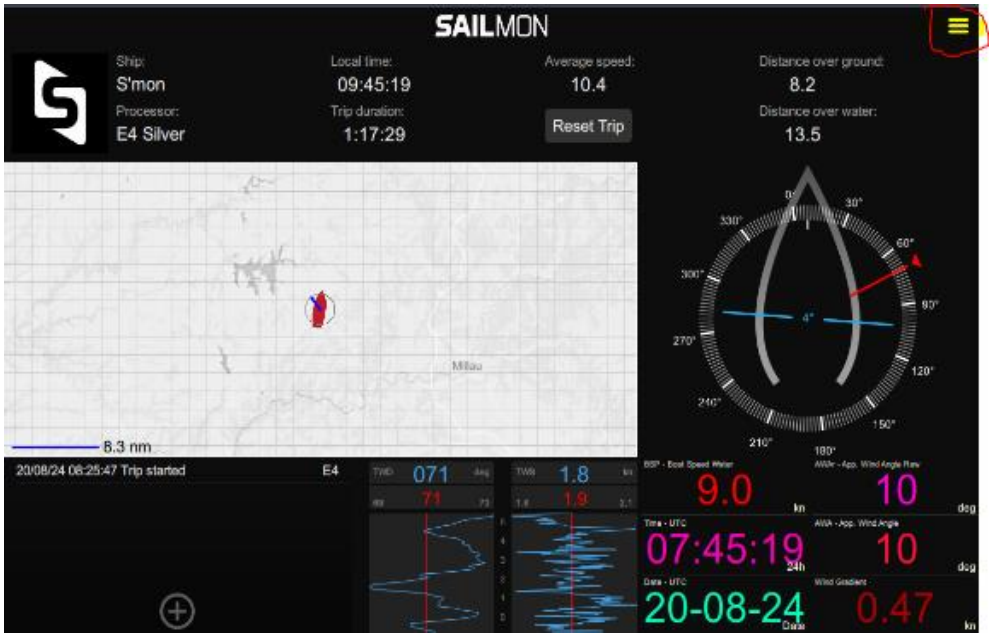
The default Mission Control Dashboard will provide this live data:

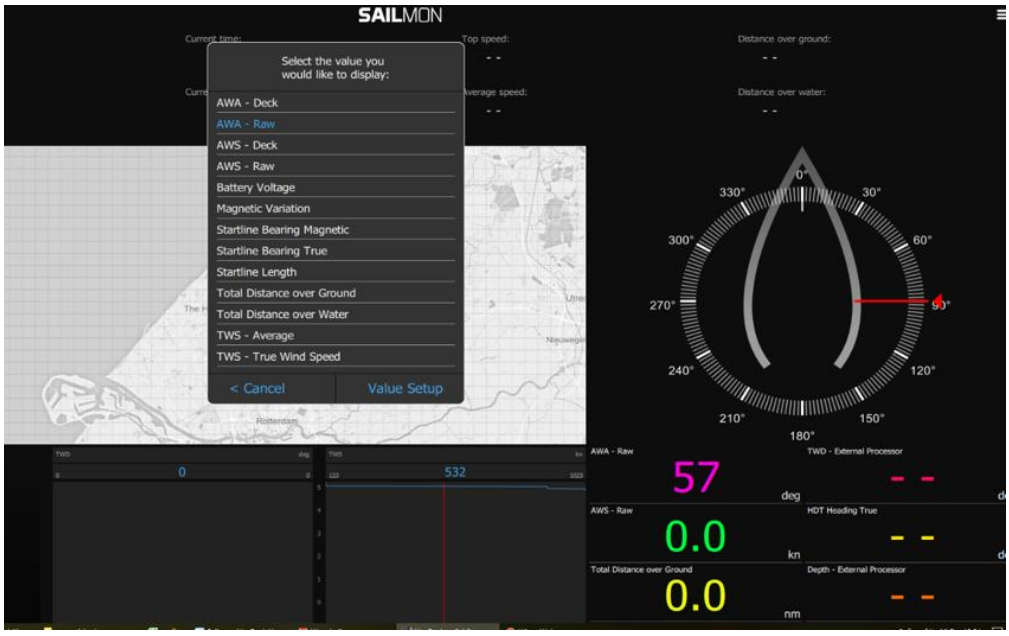
- Ship
- Current Time
- Current Trip Duration
- Average Speed
- Distance over Ground
- Distance over Water
- An interactive Chart
- A Log Book
- Boat Speed Water
- True Wind Speed
- Speed over Ground
- True Wind Direction
- Heading True
- Course over Ground
- Heel Angle

On the top right of your NavDesk mission control dashboard you will find a tribar options button. This tribar reveals the following menu choices:

- Pre-sets
- Displays
- Calibration
- Setup
- Racing

- Toggle day/night for the Navdesk software

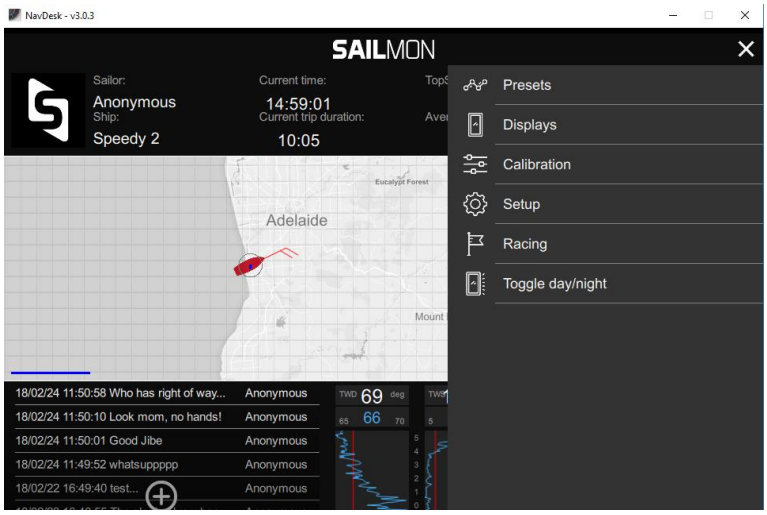


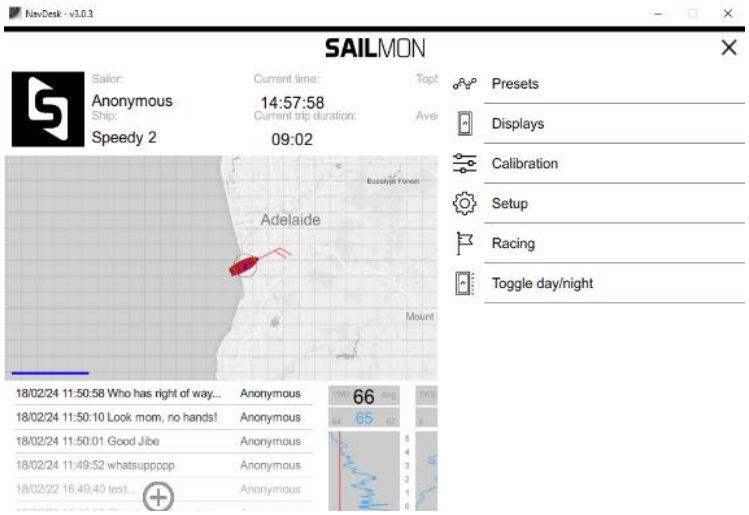


If you long click or hold your finger on the data boxes on the bottom right of the NavDesk Mission Control Dashboard you can quickly change the data you want to be displayed.

TOGGLE DAY/NIGHT

The Toggle day/night button, lets you adjust Navdesk to different lighting conditions to avoid poor readability or glare.

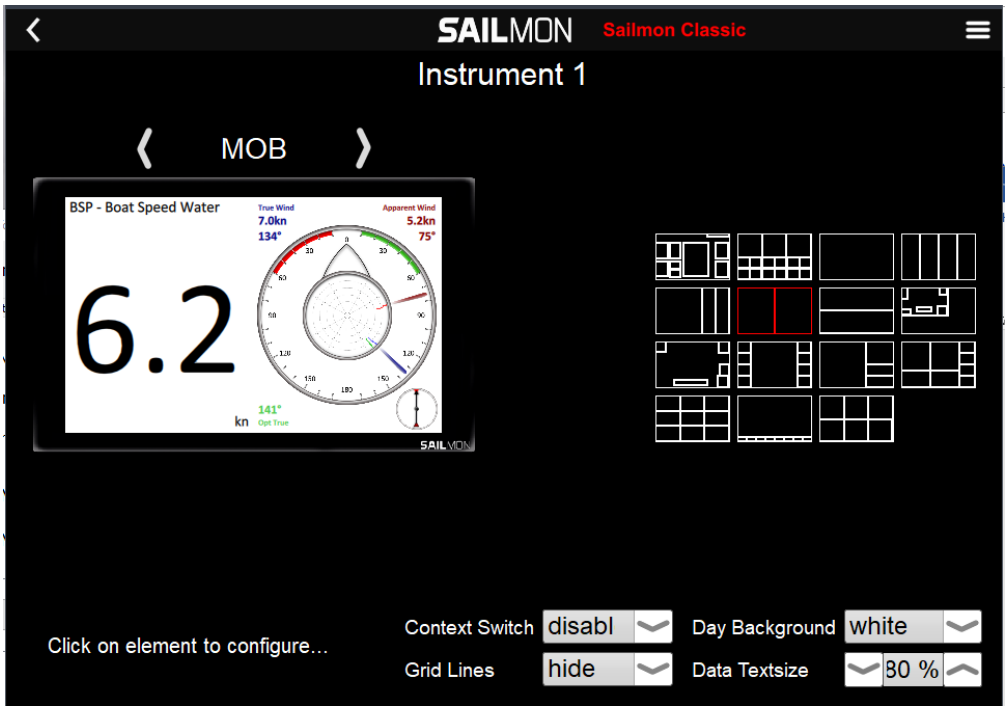




2.3 SETUP DISPLAYS

The display menu, allows you to setup each of your Sailmon displays to customise your data layout and preferences.

NOTE: Sailmon E Ink displays are black on white or white on black displays only. They also do not show graphic information, only variable numbers.



2.3.1

CONTEXT SWITCHING

When enabled context switching will make sure your display always shows the relevant information for different modes, such as upwind, downwind or prestart. In Calibration>More Calibration>Context Switch you can select which pre-sets are available for Context Switching.

When context switching is disabled, you need to manually switch in the pre-set menu or with a button input.

2.3.2 GRID LINES

Show or hide Gridlines between different elements on the displays.

2.3.3 DAY BACKGROUND

This gives you the choice to have a Black or White background during the day when brightnees levels are above 90%

2.3.4 DATA TEXT SIZE

The Data Text size gives you the ability to control the size of the Data Text.

2.3.5 CHOOSING THE DISPLAY LAYOUT

On the right side of the displays page, you can fully customise the layout you want on each display. This includes the number of data points you want to show and how big you want each data box to be.

2.3.6 CHOOSING AND CUSTOMIZING YOUR DISPLAY DATA

On the left side of the displays page you will see a picture of a Sailmon Element in the orientation of the display being edited (Landscape or Portrait). Having selected your layout for the screen, it is now time to click, choose and customise your displays elements.

When you select an element/data box you will be given these choices:

- SELECT VALUE

Here, you will choose the data element you want to be displayed in that data box.

- CHANGE COLOUR

Here, you get to choose the exact colour you want your reading to be displayed as.

- ELEMENT STYLE

Element Style, gives you the choice of how you want to display data, either in graph form, a chart or as a unit and more.

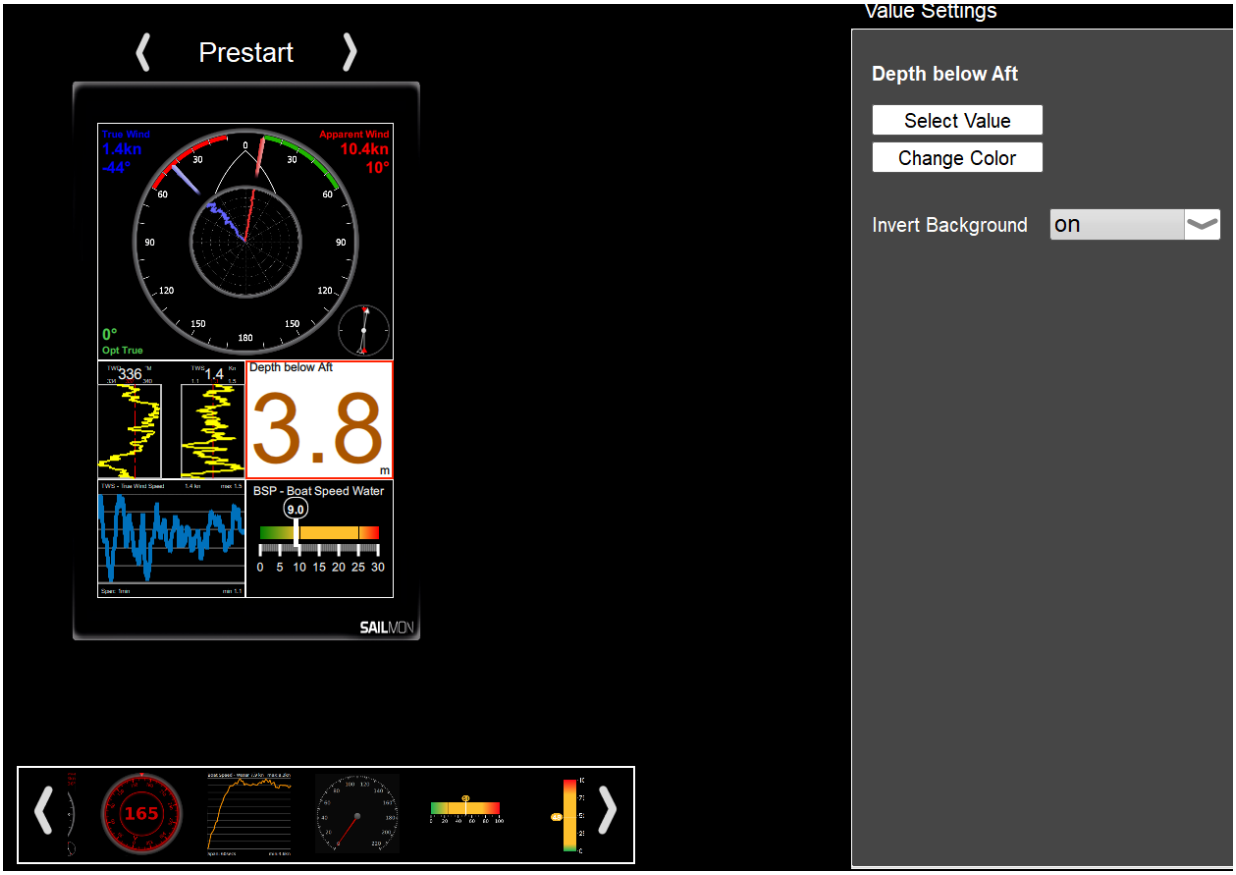
Depending on the combination of data element and the element style you choose you will have more customisation features available to you.

- Invert Background. Change the background colour from White to black.
- Direction Indicator. Show or hide indicator for all angle related variables.
- Value description. Show or hide the description of the variable.

To select how data is being displayed scroll through the options and select:

2.3.7 PRE SETS

Once your displays are set up, you can change your pre-sets according to the state of sailing you are in. Your system can automatically change according to the wind angle.



2.3.8 MAX displays

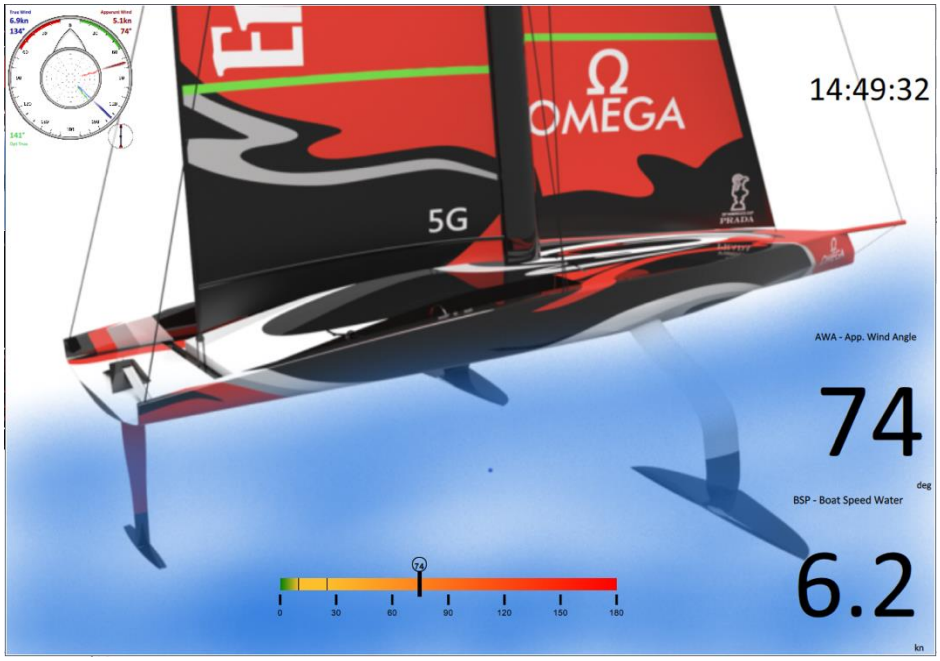
It is possible to connect MAX displays to the E4 by selecting System>Advanced>E4 Repeater mode in the MAX display. All internal sensors of the MAX display will be disabled and all available data from the E4 will be available to be displayed on the MAX.

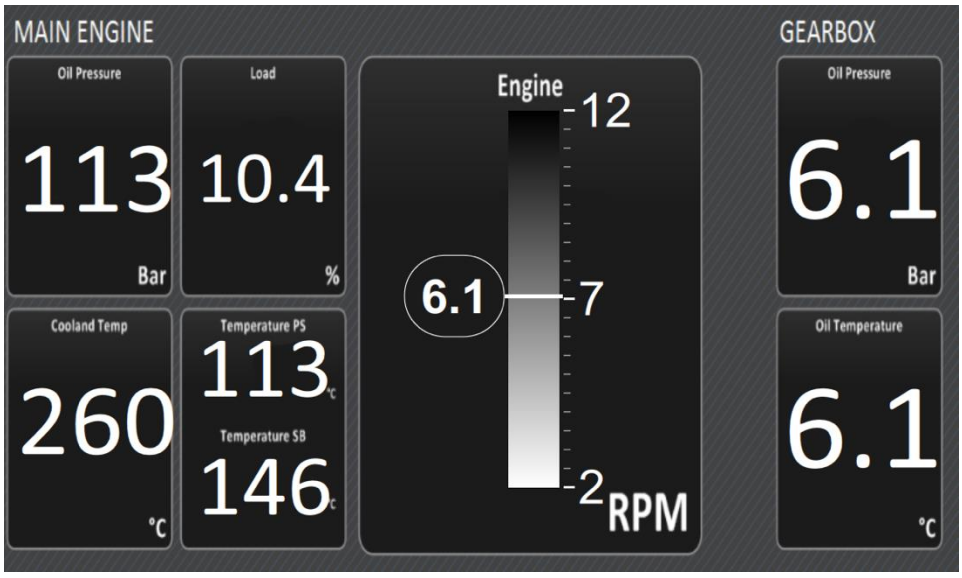
For this to work the MAX needs to be on the same network as the E4 system.

2.4 PAGEBUILDER

Sailmon has introduced a new feature called the Pagebuilder. With this feature we can build custom page layouts which can include boat logo's or Sailplans with data incorporated.

We will build these on order and will show you the final result before pushing it onto your system. We can also mimic AMCS/MBRS/MPA layouts.





CONTACT US FOR A PROPOSAL

3. CALIBRATION

We all know how important calibration is for accurate sailing data. The NavDesk Calibration menu gives you full control to calibrate your sensors. Included in the calibration menu are guides to calibrate your sensors.

3.1 DEPTH

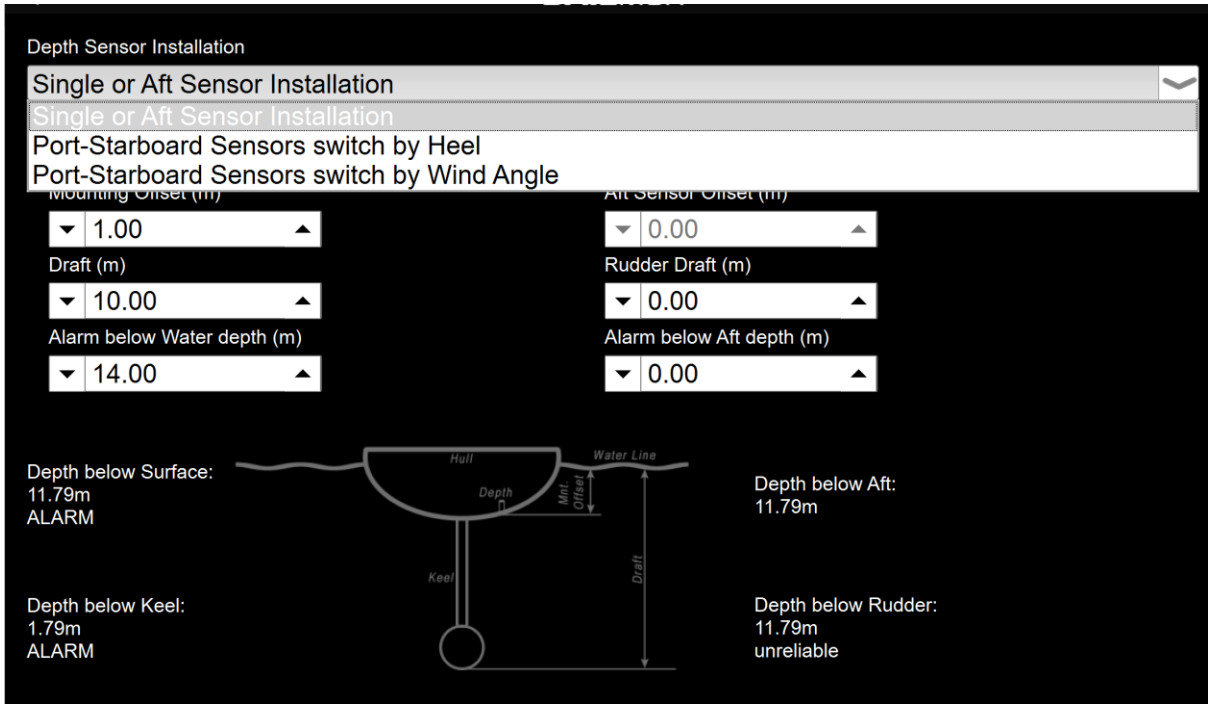
Select the input type of your depth sensor. Then set the mounting offset to waterline level and the draft of your yacht.

DEPTH ALARM

Set a depth alarm to change the depth display to a Red background if Depth below waterline goes below the set alarm.

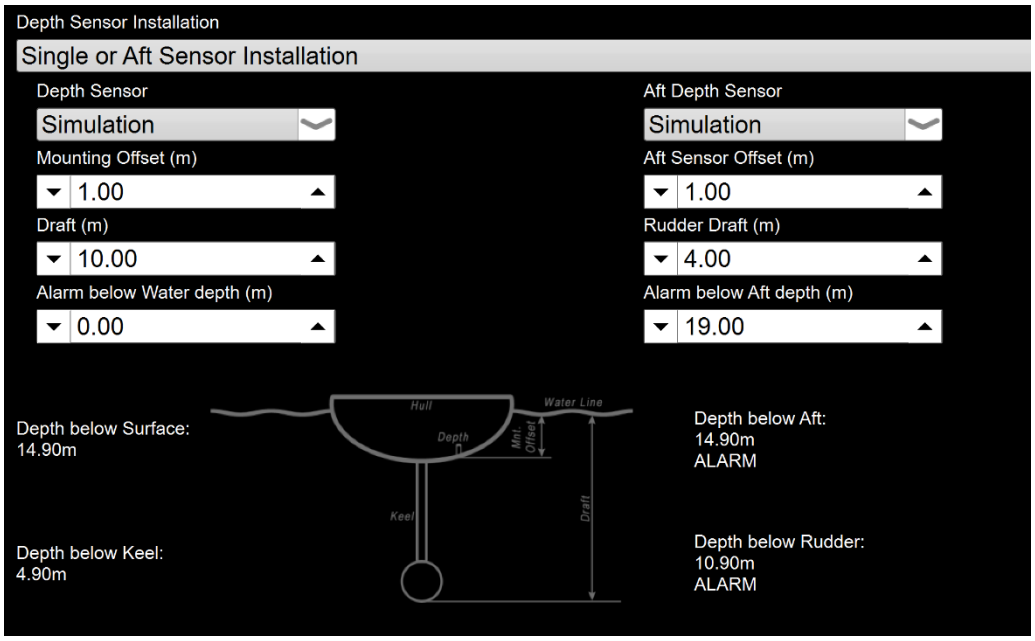
PORT-STARBOARD SENSOR

If you have 2 depth sensors, select this option and set the input type for each sensor and the mounting offset for each together with the draft of the yacht. Depth sensors can be set to switch by Heel angle or by windangle to determine which sensor to use.



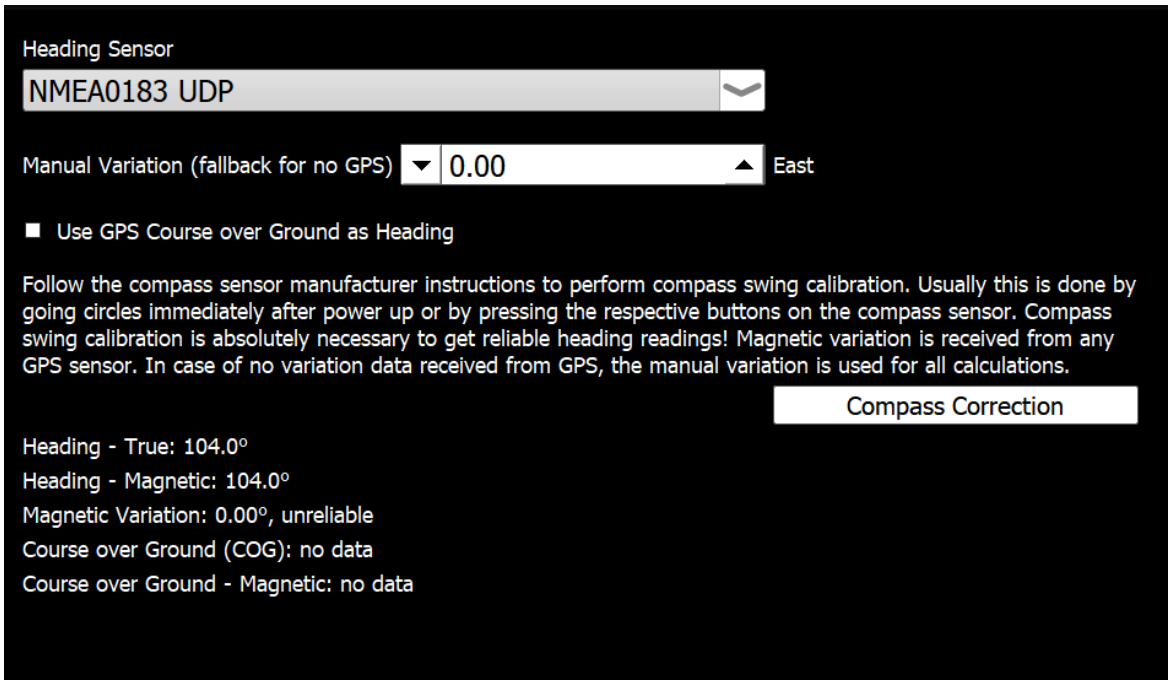
AFT DEPTH

If you have an Aft Depth sensor as well select the input type, the depth of the rudder and the offset to waterline of the sensor.

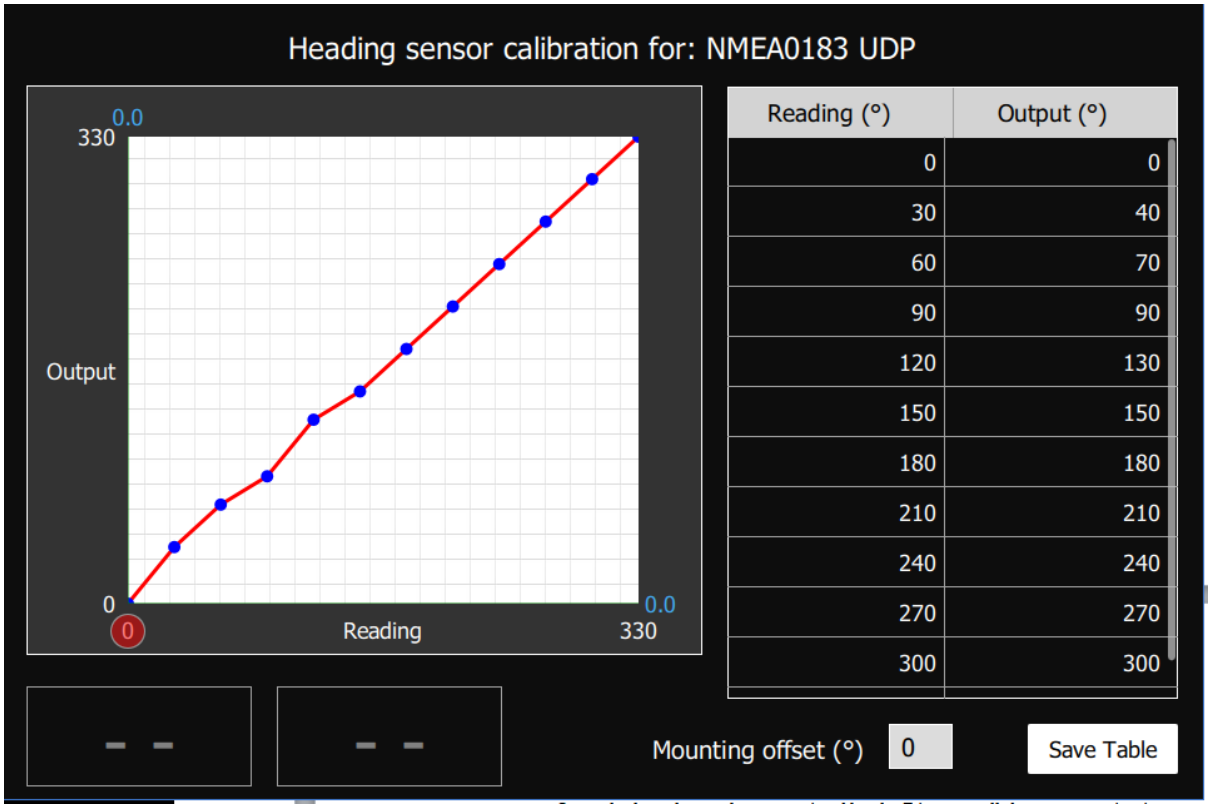


3.2 HEADING

Select the input type and, if the GPS does not provide Variation you can put it in there.



In compass Correction you can calibrate the offsets for different courses here and the mounting offset if the heading sensor is not aligned with the bow.



3.3 GPS

In the GPS calibration page, you can set the input type and if COG and SOG need to be calculated within the Sailmon system.

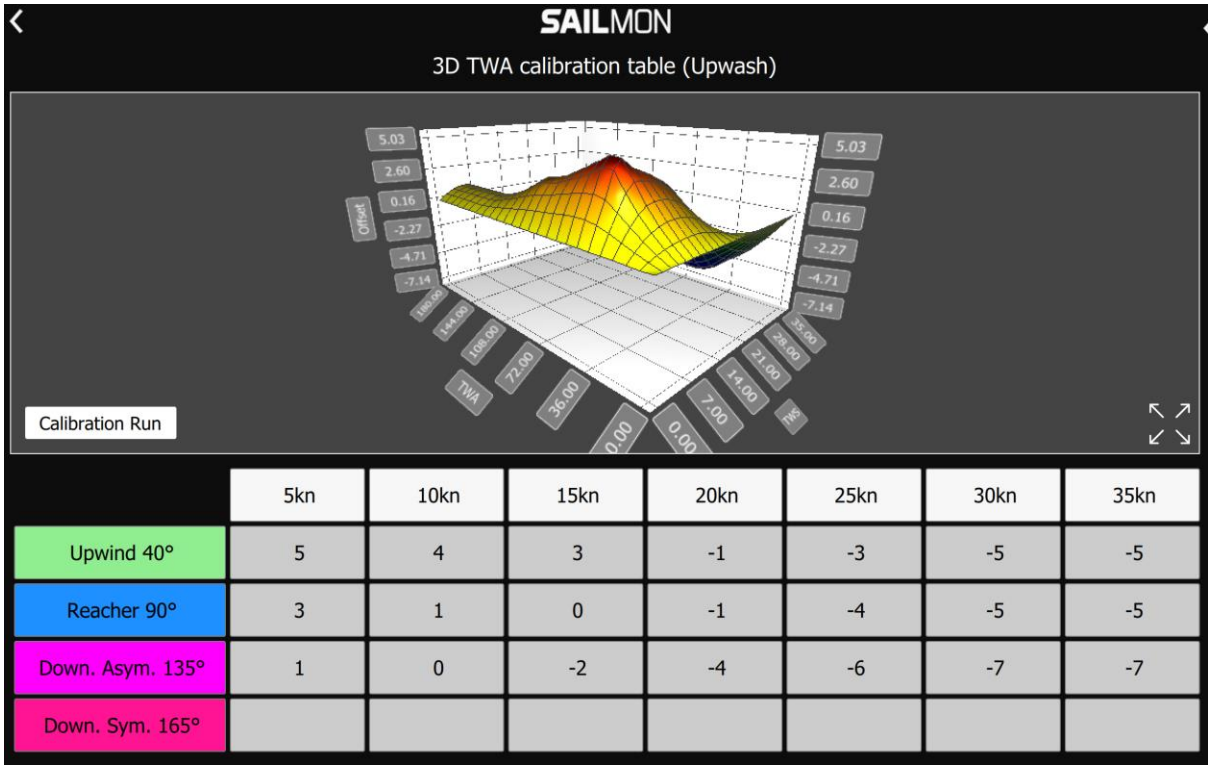
3.4 WIND

Wind calibration is by far the most difficult part of calibration of your system. It is also very important and usually, when you are racing, a daily chore to adjust slightly.

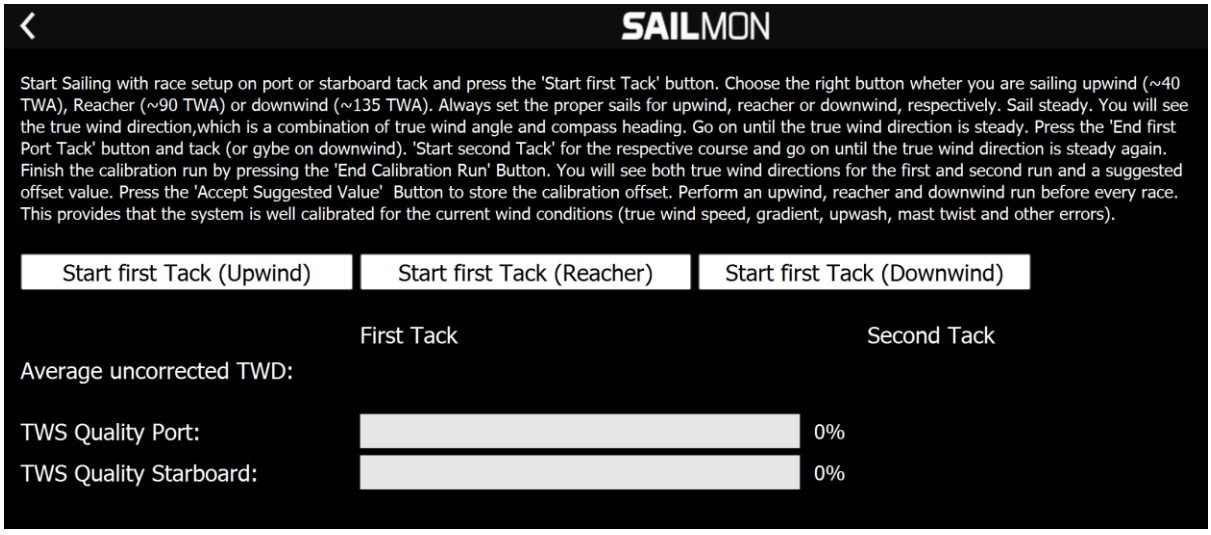
For an in-depth explanation of this please read our Calibration Manual.

- First select the input type of your wind sensor, then set the mounting offset of the sensor which can also be done by using the Auto offset button and following the guides there.
- If you have a mast rotation sensor set the input type and offset in the relevant box. The calibration of the sensor itself can be done in the calibration of linear sensors.
- Wind Speed factor usually does not need to be altered.
- Enable Heel Correction- If you have a heel sensor you can check here to use this in your wind calibration.
- Enable TWD filtering adds a 10 second damping on TWD
- Overwrite True Wind with Ground wind is only used for coach boats that are stationary and log wind data.

- Enable 3D wind correction is the important part of the complete wind triangle calibration. This can be done manually or automatically by sailing upwind/downwind and on a reach. If you are racing this is a daily occurrence as wind weight changes with temperature, humidity etc.
- For 3D TWA calibration a table needs to be filled with True Wind angles over different wind speeds. Downwind angles show either 135 degrees TWA or 165 degrees TWA depending whether you are sailing a High performance yacht like a multihull or ballasted yacht.



	5kn	10kn	15kn	20kn	25kn	30kn	35kn
Upwind 40°	5	4	3	-1	-3	-5	-5
Reacher 90°	3	1	0	-1	-4	-5	-5
Down. Asym. 135°	1	0	-2	-4	-6	-7	-7
Down. Sym. 165°							

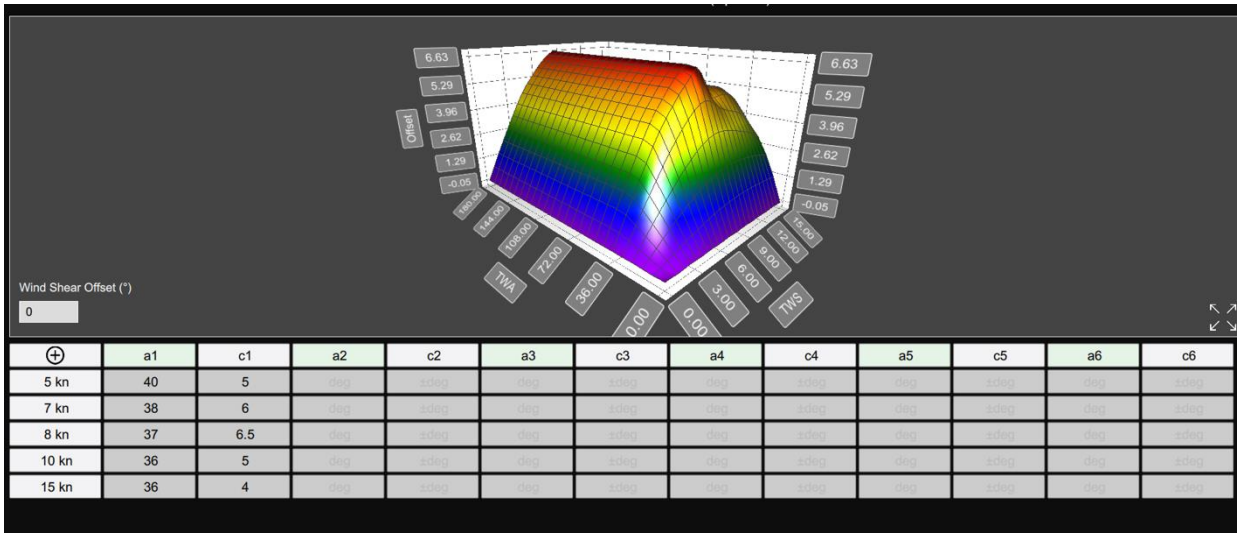


For 3D TWS calibration you set the offset for upwash out of the spinnaker at different windspeeds.

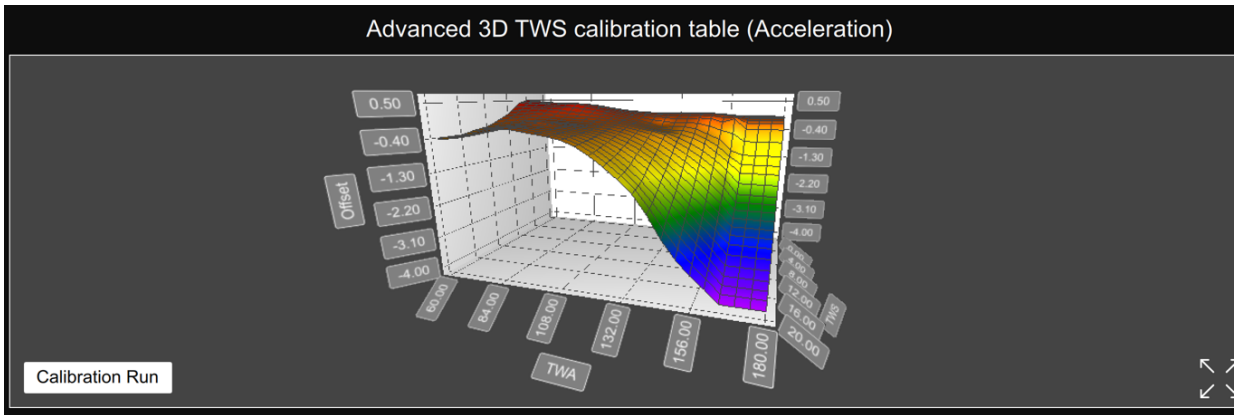
E4 BLACK

The E4 Black has advanced 3D TWA and TWS wind correction tables that can be filled with user defined windspeeds giving a fully configurable table. **No Calibration runs are available with this option**

CONTACT US IF YOU'RE INTERESTED TO UPGRADE YOUR E4 WHITE OR SILVER WITH ADVANCED 3D CALIBRATION



⊕	a1	c1	a2	c2	a3	c3	a4	c4	a5	c5	a6	c6
5 kn	40	5	deg	±deg	deg	±deg	deg	±deg	deg	±deg	deg	±deg
7 kn	38	6	deg	±deg	deg	±deg	deg	±deg	deg	±deg	deg	±deg
8 kn	37	6.5	deg	±deg	deg	±deg	deg	±deg	deg	±deg	deg	±deg
10 kn	36	5	deg	±deg	deg	±deg	deg	±deg	deg	±deg	deg	±deg
15 kn	36	4	deg	±deg	deg	±deg	deg	±deg	deg	±deg	deg	±deg



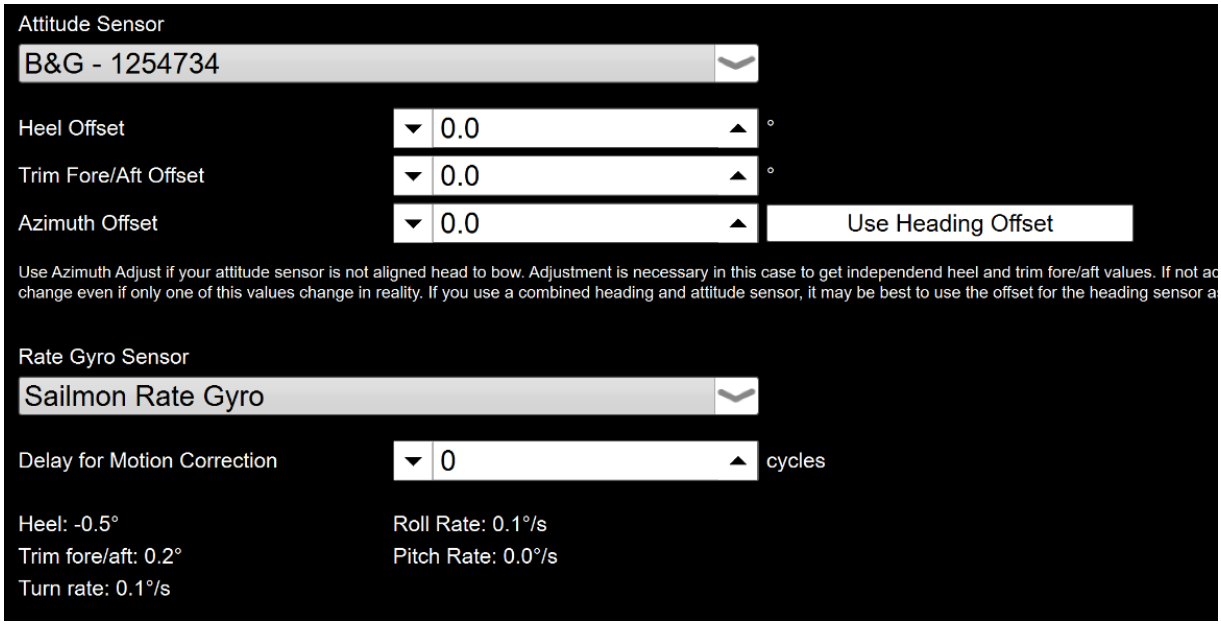
⊕	a1	c1	a2	c2	a3	c3	a4	c4	a5	c5	a6	c6
5 kn	60	0.5	90	0.4	130	0	150	0	160	0	deg	±kn
7 kn	60	0.4	90	0.4	130	-0.3	150	-0.5	160	-1	deg	±kn
8 kn	60	0.2	90	0.2	130	-0.3	150	-0.6	160	-1.1	deg	±kn
10 kn	60	0	90	0	135	-0.4	150	-1	165	-2	deg	±kn
15 kn	60	-0.3	90	0	135	-1	150	-2	165	-3	deg	±kn
20 kn	60	-0.4	90	-0.1	135	-1.5	150	-3	165	-4	deg	±kn

3.5 ATTITUDE AND RATE GYRO

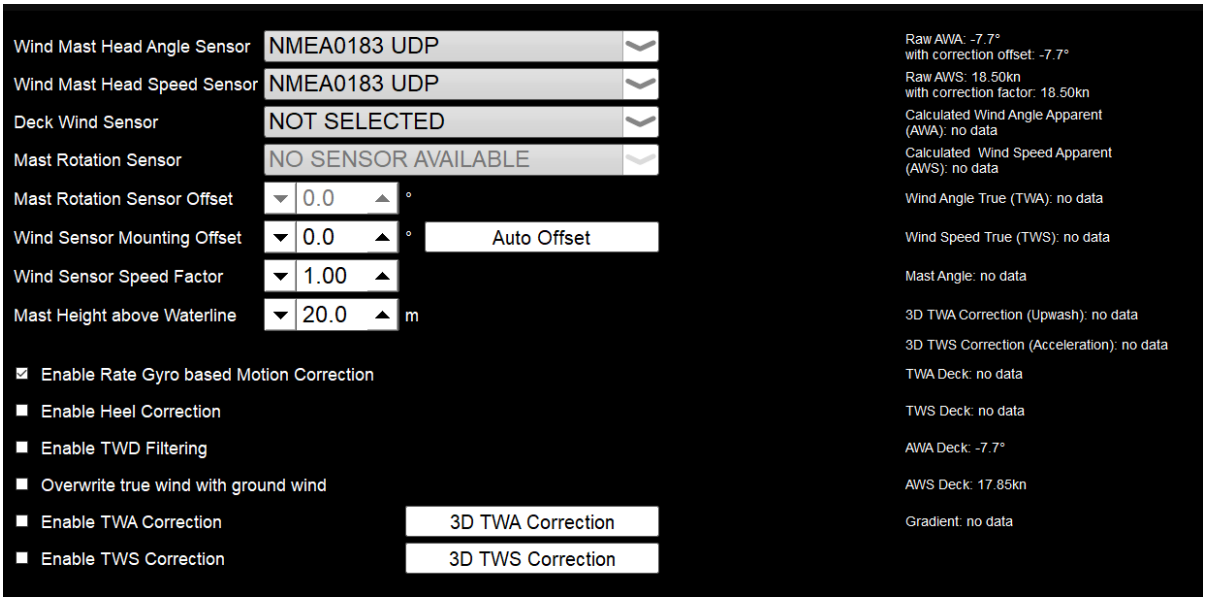
The Sailmon Rate Gyro greatly improves the calculation of the wind readings by reducing the motion of the yacht in waves. For this the Sailmon Rate Gyro needs to be installed as close to centreline as possible.. The unit needs 12-24VDC power supply and an Ethernet connection to the switch where the E4 is connected to as well. The Sailmon Rate gyro calculates rates and angles at 100Hz.

The unit will be recognised automatically as Sailmon Rate Gyro.

You can setup a standard Attitide sensor from your heading sensor for instance to display heel, trim angles and ROT. Select the Rate Gyro for motion correction. For Motion correction only angular rates are used. Enter the number of cycles of delay. This number is 4 for any analog or NMEA183 windsensor transmitting at 25Hz. If you have a windsensor with 10Hz output rate enter a delay of 10 cycles here.



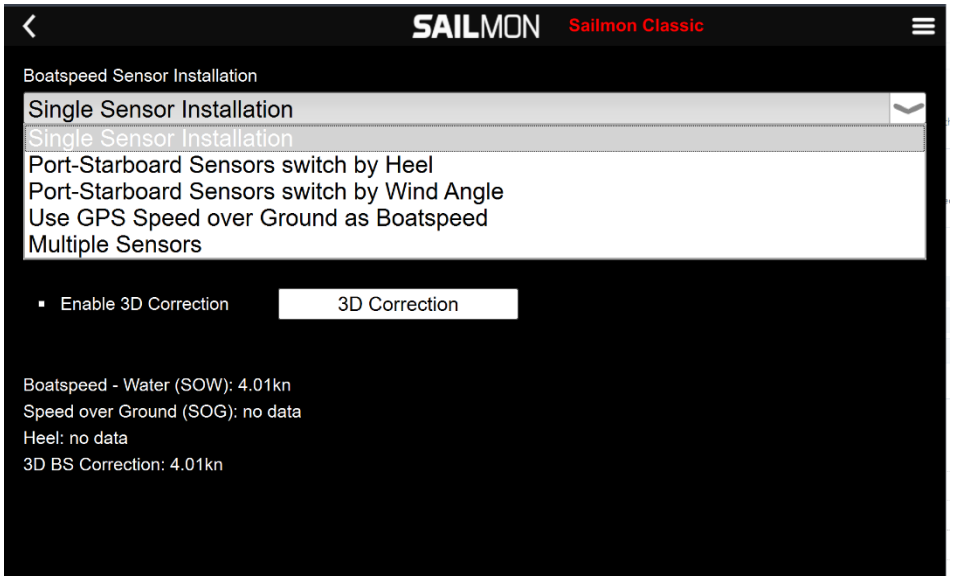
In the Wind calibration section tick the box for Use Gyro Based Motion Correction and set the mast height.

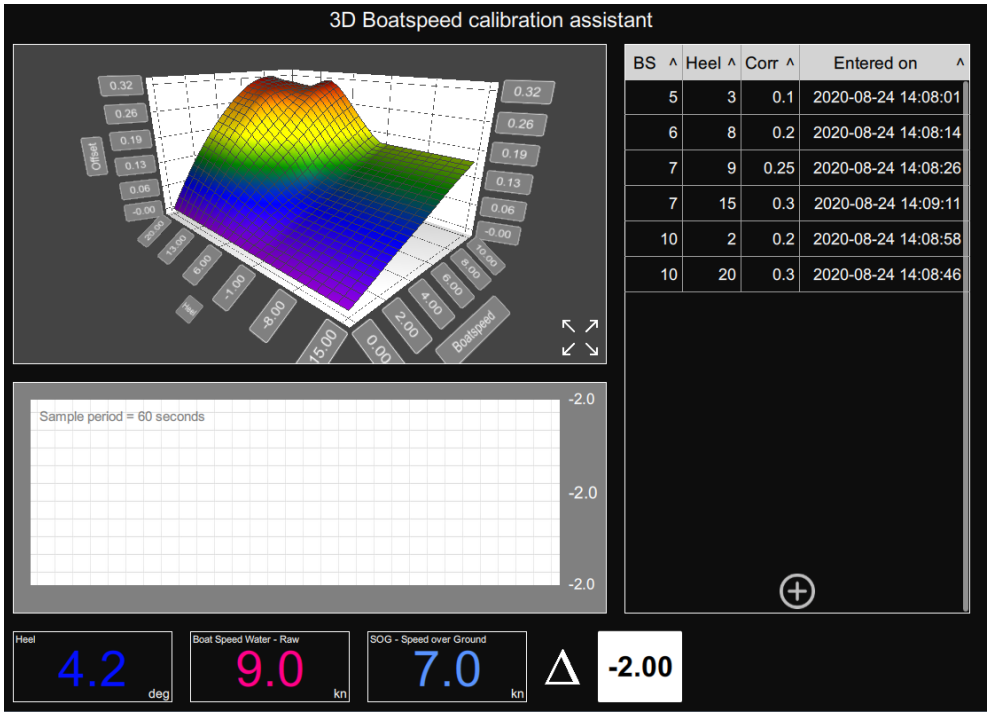

Wind Mast Head Angle Sensor
NMEA0183 UDP
Wind Mast Head Speed Sensor
NMEA0183 UDP
Deck Wind Sensor
NOT SELECTED
Mast Rotation Sensor
NO SENSOR AVAILABLE
Mast Rotation Sensor Offset
0.0
°
Wind Sensor Mounting Offset
0.0
°
Auto Offset
Wind Sensor Speed Factor
1.00
Mast Height above Waterline
20.0
m
Enable Rate Gyro based Motion Correction
Enable Heel Correction
Enable TWD Filtering
Overwrite true wind with ground wind
Enable TWA Correction
3D TWA Correction
Enable TWS Correction
3D TWS Correction
Raw AWA: -7.7°
with correction offset: -7.7°
Raw AWS: 18.50kn
with correction factor: 18.50kn
Calculated Wind Angle Apparent
(AWA): no data
Calculated Wind Speed Apparent
(AWS): no data
Wind Angle True (TWA): no data
Wind Speed True (TWS): no data
Mast Angle: no data
3D TWA Correction (Upwash): no data
3D TWS Correction (Acceleration): no data
TWA Deck: no data
TWS Deck: no data
AWA Deck: -7.7°
AWS Deck: 17.85kn
Gradient: no data

3.6 BOAT SPEED

SINGLE OR PORT-STARBOARD SENSORS

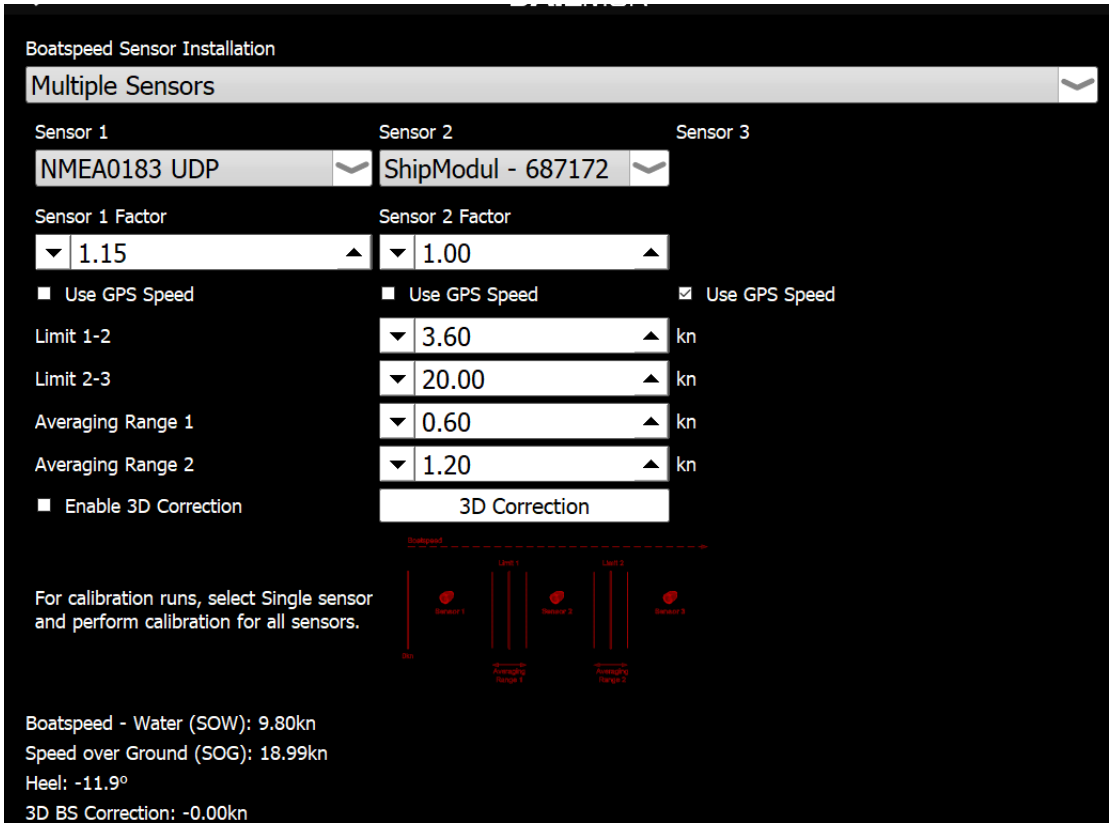
Set the boat speed input for single, port-stbd or multiple sensors. Enter a boat speed factor here manually or do a calibration run by either using SOG as speed reference or select measured mile if you have a straight line between 2 marks with a known distance. Follow instructions within the menu. For 3D calibration (useful if you have heel sensor), tick the box and enter values. It is best to use a logfile to analyze data beforehand to know which factor is needed for which hee langle and boatspeed.





MULTIPLE SENSORS

When you have multiple boat speed sensors enter the inputs for each and set the calibration factor and the speed limits to switch between Sensor 1,2 and 3 by using Limit 1-2 and Limit 2-3. The Averaging Range 1 and 2 are the ranges the data needs to be outside of to switch sensors. Max Value here is 2 knots.



3.7 ENVIRONMENT

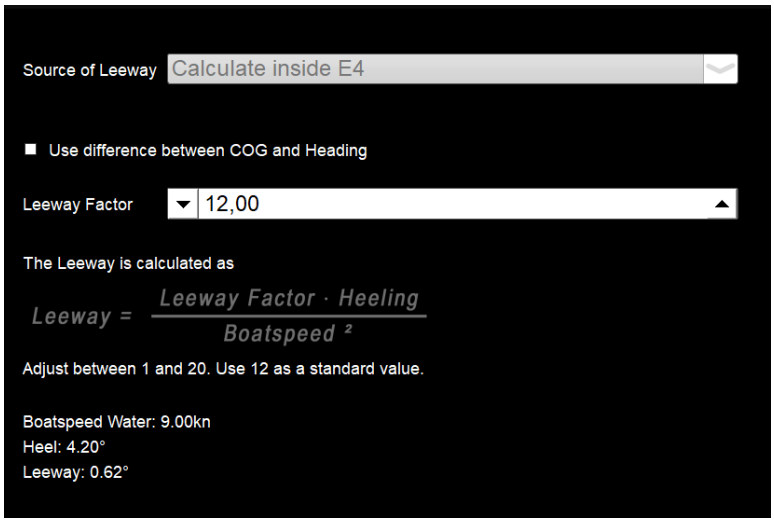
Set sensor input type for Sea temperature, Air temperature, Barometer and Humidity here and if needed, the offsets.

3.8 SENSORS

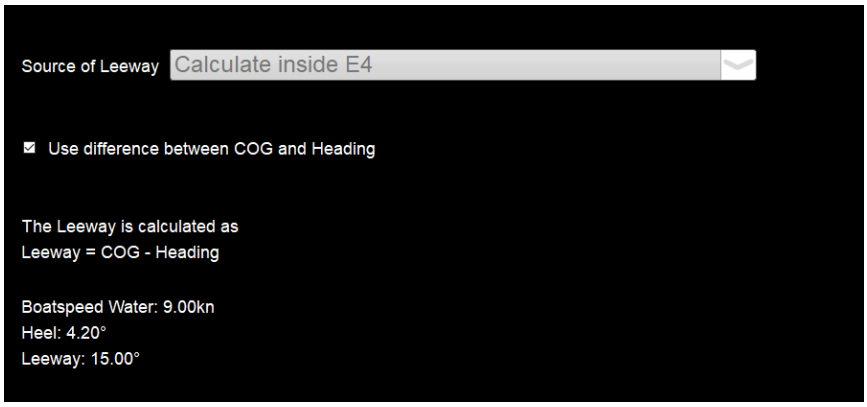
Inputs over all input types like Rudder angle, Mast rotation, Boom Position, Trim tab, Canard Angle and Keel angle can be set here including the input types and calibration.

3.9 LEEWAY

Normally the factor is between 1 and 40 depending on boat type. High performance boats have lower factors.



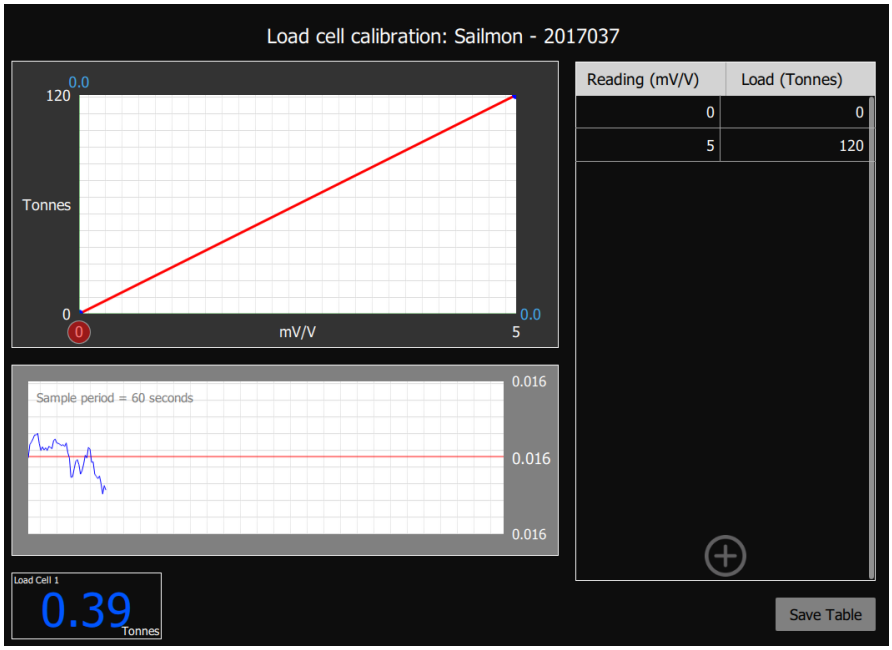
Leeway can also be set to calculate the Delta between COG and Heading by ticking the checkbox. This is especially useful for multihulls who do not have any heel angle or have heel angles to weather.



ATTENTION: Only use this function if you have a high end compass and a GPS with at least 4Hz update rate.

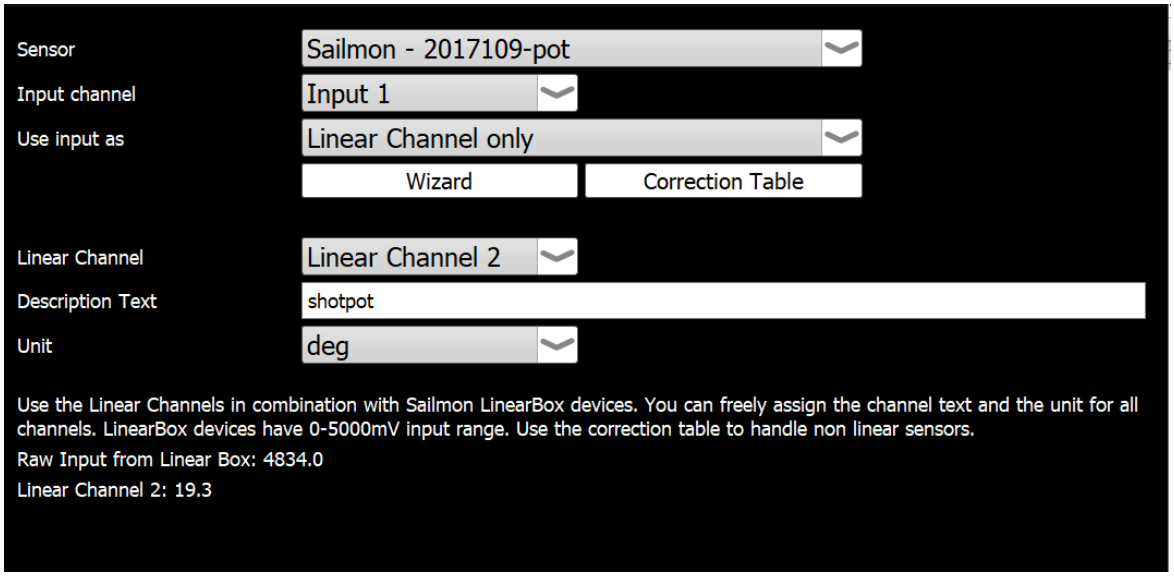
3.10 LOAD CELLS

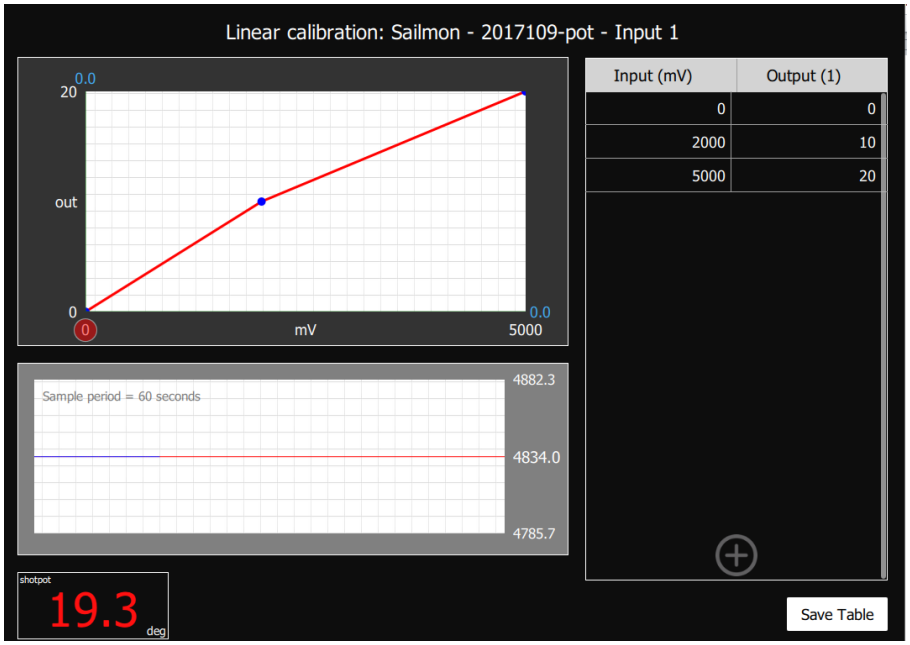
For use with a Sailmon Loadcell Box only! If you have a load cell with a calibration sheet input the rated loads and mV/V values in the calibration section here.



3.11 LINEAR CHANNELS

For use with Sailmon Linear Box only! If you have linear sensors like rudder angle, forestay length, pressure sensors etc. select the input channel and also what type of value it is (bars, degrees etc.). Rename the variable with a custom name and link to a physical linear channel 1-4.

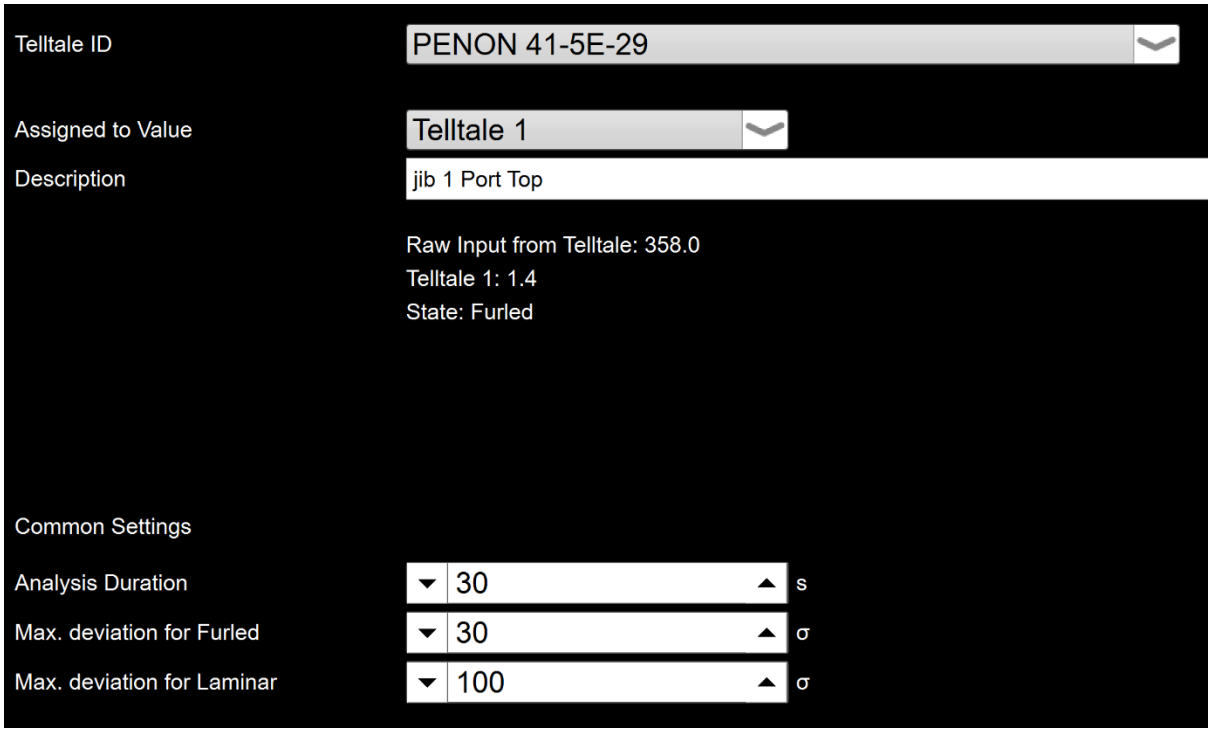




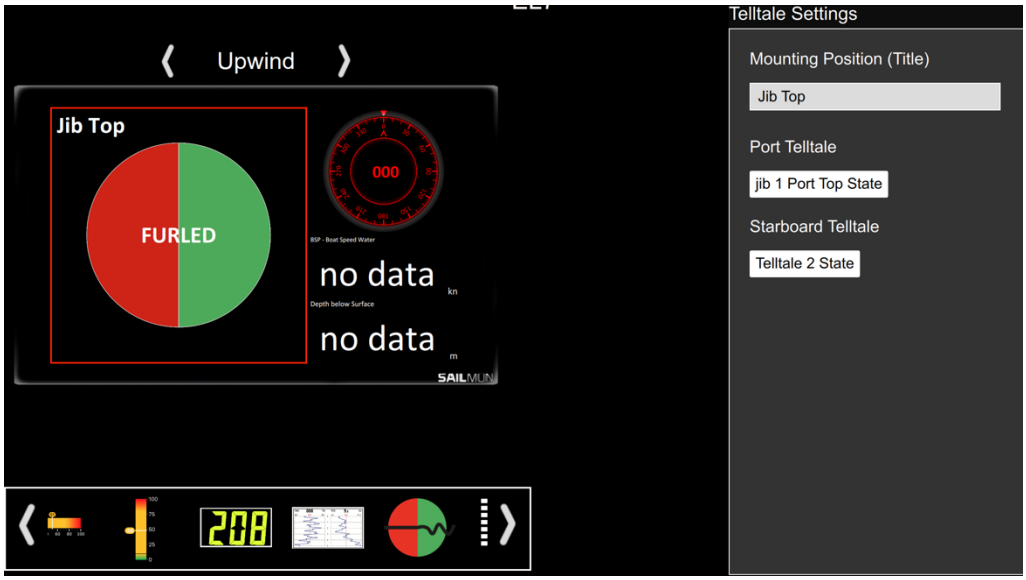
3.12 E-TELLTALES

If you have E-Telltales from Mer-Agitee and you have purchased the E-Telltales plug in this page will appear in Navdesk calibration.

You need to know where the Telltales are positioned on the sail. Here you can give each PENON ID a relevant name and analysis duration, usually either 15 or 30 seconds. Do not alter the Max deviation numbers without consulting Sailmon.



In the display setup page you can set the graphic for E-Telltales, give it a name and select Port and Stbd Telltale. Do the same for all subsequent Telltales.

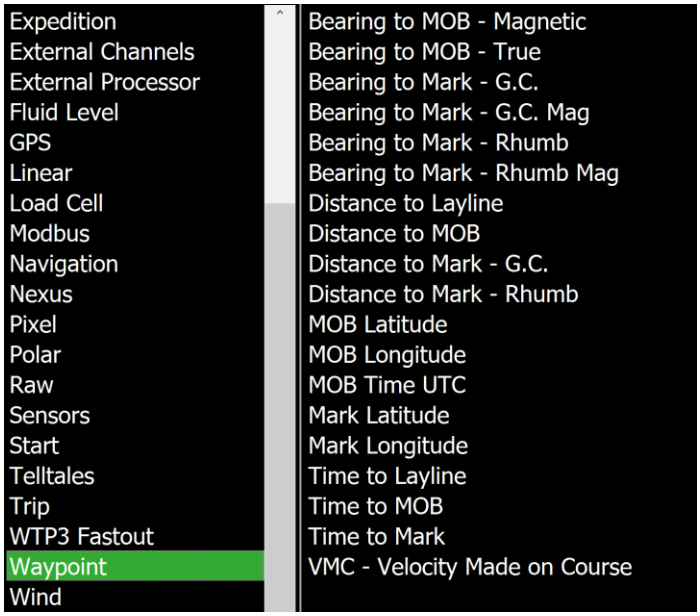


CONTACT US IF YOU ARE INTERESTED IN E TELLTALES

3.13 WAYPOINTS

Select what your source of navigation is, there can be only one navigation source active at a time, to select the correct input the source needs to be active with a waypoint selected. If you have both a plotter and navigation software select the one to use here.

To see Waypoint data on a display, go to “Waypoint” to select data there.



3.14 ENGINES

If you have a NMEA2000 engine interface the sensors can be selected here.

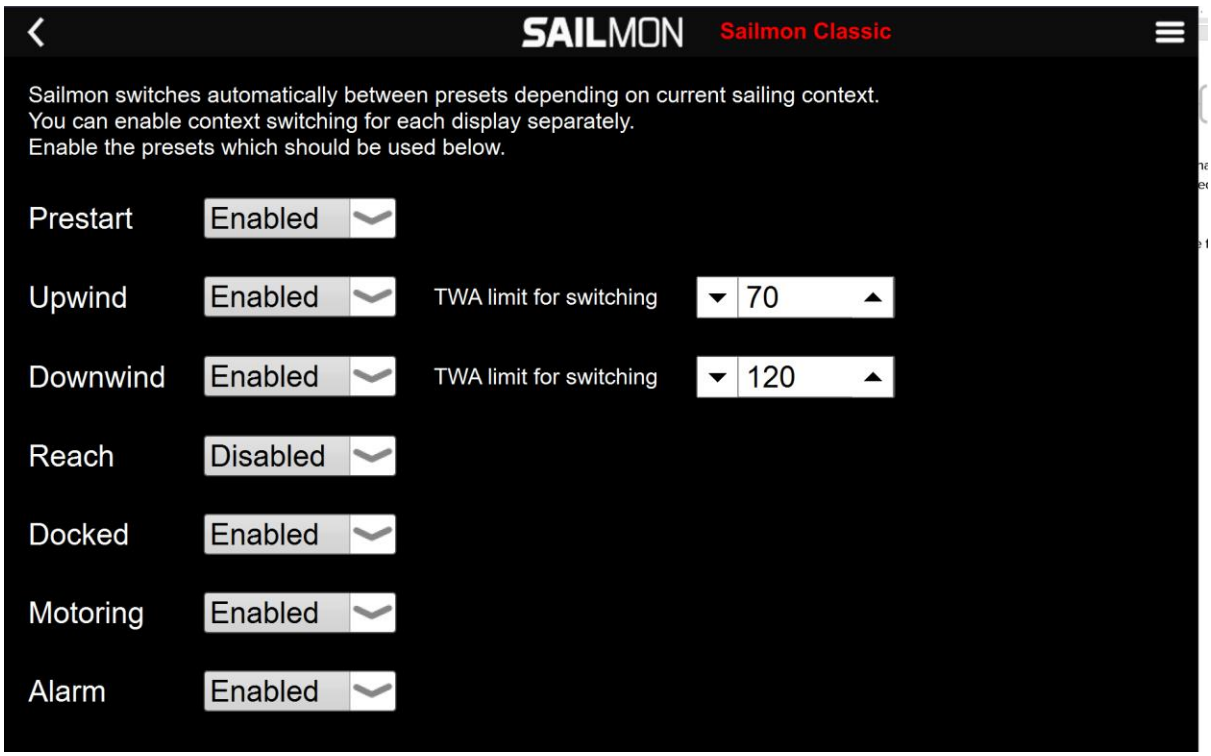
3.15 EXTERNAL PROCESSOR

This is a special feature of Sailmon, if you have multiple systems that provide boat data you can select here which of the systems is used as “secondary” system.

3.16 CONTEXT SWITCH

Enable/disable display auto switching here for the different legs of a course. This setting is systemwide. **MOB context switch is always active when Context switch is enabled for a display.**

You can also change the TWA at which the context switch will change from Upwind to Reaching and from Reaching to Downwind.

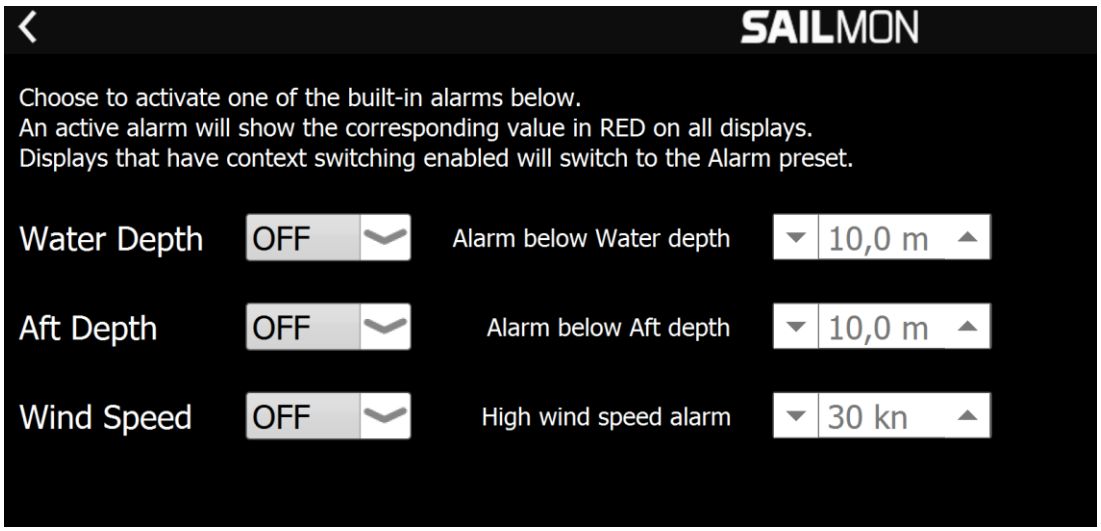


3.17 ALARMS

Several alarms can be set here with their alarm value. When alarm is active the display background of that varialbe will turn Red.

When a Piezo buzzer is connected to the Sailmon Buttonbox a buzzer will sound and a Button can be assigned to acknowledge the alarm and turn the buzzer off.

*Please contact Sailmon if you already have a Buttonbox and would want to add this feature.



3. SETUP

3.1 VALUES

The Values menu gives you full control of your values:

- Edit Name- you can change the name of a variable
- Leading digits
- Precision- The number of decimals used on a display
- Colour of variable text on the display- Will be system wide for a variable
- Units of measure
- Filter its response rate (Damping)

3.2 UNITS

The unit's menu, allows you to set your global default units for the whole system. The global unit selection is comprised of:

- Speed
- Distance
- Depth
- Temperature
- Barometric Pressure
- Force
- Volume

3.3 NETWORKING

The networking menu gives you full control of the E4 serial communication ports.

3.3.1 SERIAL PORTS

Sets the modes in which the physical serial ports of your E4 should operate.
If you use Fastnet displays this is where you set Port 2 Mode to Fastnet protocol.

3.3.2 INPUTS

Physical NMEA 0183 ports are received automatically and are therefor not listed here.

Expedition over UDP. Set the UDP port for the input of Expedition data received from Expedition. The standard port is 5011.

For NMEA0183 over UDP 1 to 3, 3 channels are available besides the inputs for Expedition and *__Faro__. Set the UDP port and checkmark for activating these inputs. Standard UDP ports are 7001,5000,10110.

WTP3 Fastout is the input from a WTP3 processor. This port needs to be set to 4100.

E-Telltales over UDP is the input from Mer-Agitee E Telltales, standard port is 10001.

Faro over UDP to receive data from Faro Instrument systems, standard port is 7102.

FARO **In the near future a new software feature for displays will be published where no E4 processor is needed when Element 7 or Element 10 displays are connected to a FARO or WTP3 system. Where data is input over UDP. All calibration will then be done in the Faro or WTP3 processor.**

E4 BLACK

MODBUS TCP/IP INPUT

The E4 Black has the capability to read data from up to 10 PLC's using Modbus TCP/IP. Data needs to be 16bit data or single bit events for alarms. The maximum number of channels is 50.

In the section for IP address and channel set the IP address of the PLC and the channel to be used, standard port is 502. Be sure to set these ports in the PLC as well.

In the configuration section below resides a JSON file where the Address from the PLC, Channel in the E4 (starts with 1), RegisterType (normally 4, Holding Register), Scale and Offset are listed. Registers to be read from the Modbus TCP server are defined in a JSON array.
The scale factor is the divider for the 16bit input; input/sensor calibration, i.e. 4095/18.3 for a loadcell rated at 18.3 tonnes at the maximum of 4095 bits.
Arrays are always enclosed in [ ]. Each register in the list is an object defined by { }.
There is a **comma** after every register, except the last. JSON text will become Red if the syntax is not valid.
Example:

```
        [
        {
        "Address": 1,
        "Channel": 1,
        "RegisterType": 4,
        "Scale": 4096
        “Offset”:100
        },
        {
        "Address": 2,
        "Channel": 2,
        "RegisterType": 4,
        "Scale": 4096
        “Offset”: 1
}
```

ALARMS

Alarms inputs can also be programmed here using the Address and a section Bits:

The text can be altered to suit.

```
        {
        "Address": 3,
        "Bits": [
        "Alarm Bit 1",
        "Alarm Bit 2",
        "Alarm Bit 3",
        "Alarm Bit 4"
        ],
        "RegisterType": 4
```

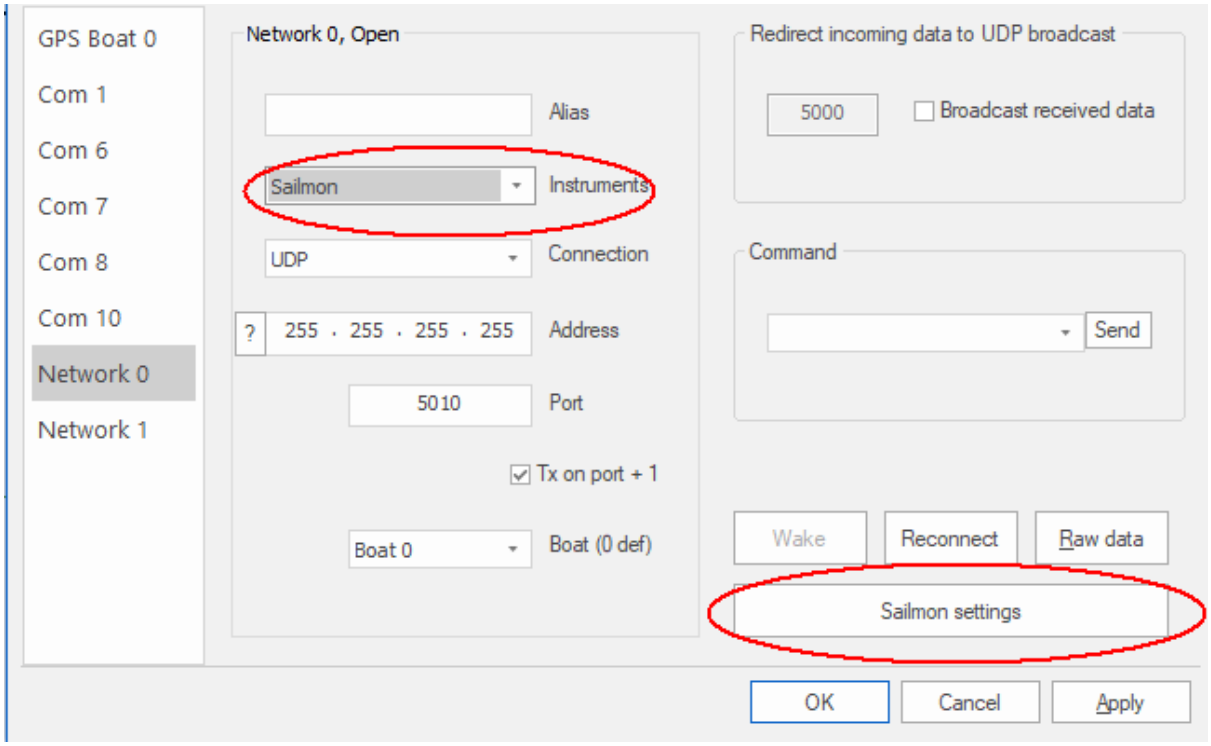
The alarms will show up in Commissioning>Buttons/Alarms and actions can be written there.

3.3.3 OUTPUTS

Controls the values to be transmitted by the E4 across all data communication protocols.

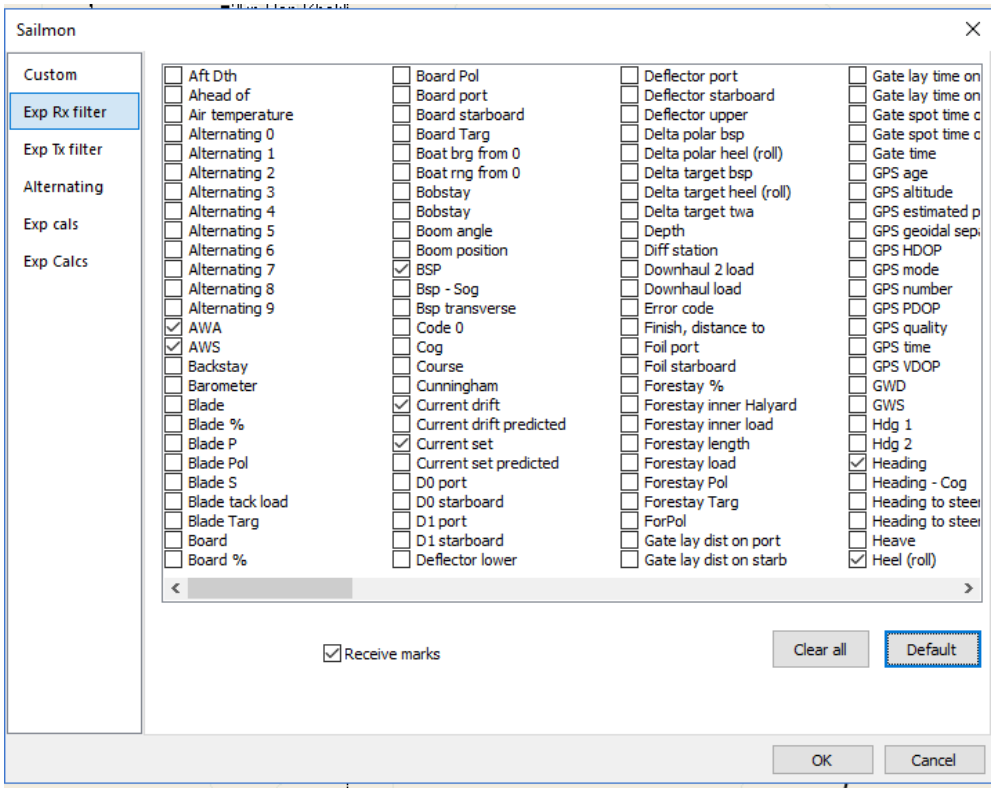
EXPEDITION

Set the IP Range of the network use 255 as the last 3 digits i.e. 192.168.1.255
You can also use 255.255.255.255 to broadcast data over the whole network
Use port 5010.
If you have a wired connection from your PC put in the same IP range as you put in the Sailmon setup. If you use a Wi-Fi connection put the IP address of the E4.
Use the setting as shown below:



Click on Sailmon Settings and use the Rx and TX filter to select which data to be received from the E4 and what data to send from Expedition to the E4. Use Expedition generated data for this like Waypoint, Lay line data, Polar data etc.

Expedition User channels- If you have Special data variables like Loadcells or Modbus data to be sent to Expedition select them here and choose in the Expedition Rx filter to display and log them there.



FASTNET ON PORT 2

If you still use B&G H2000 or H3000 displays activate this section. If you still have a Halcyon compass on the Fastnet bus do not check the box for Heading as the Halcyon compass data can be used.

NMEA0183 OVER PORT 1

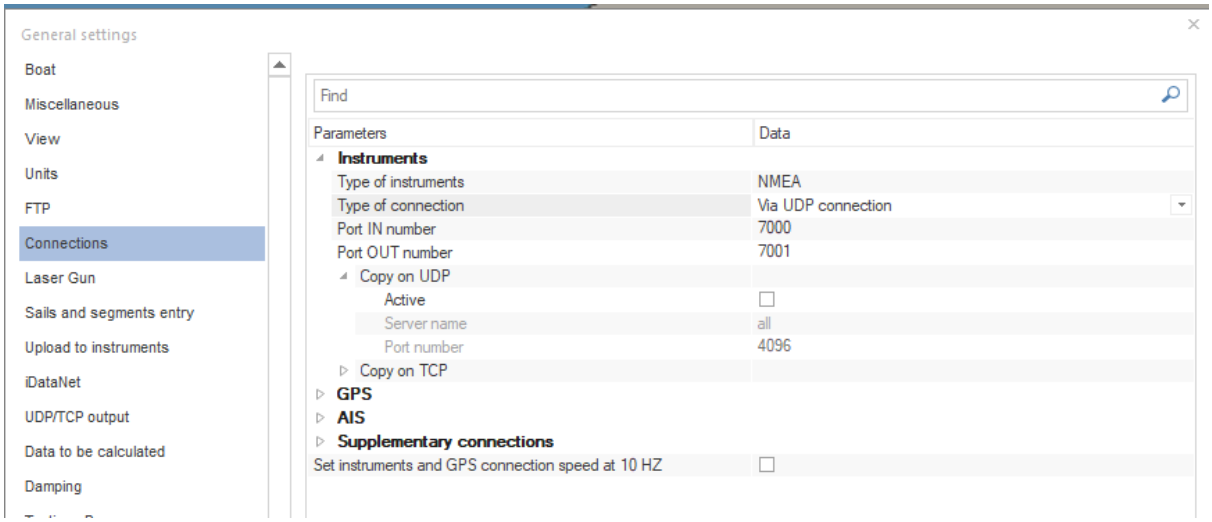
Sailmon can transmit NMEA0183 data on Port 1 to external devices that have a NMEA0183 input port. Check the boxes of the sentence you want to send.

NMEA0183 OVER UDP

When using Adrena software use this tab to set up communication. Again, use the IP address range of your system ending in .255.

ADRENA

In Adrena set type of instruments as NMEA and port 7000 as Port IN and 7001 as Port Out.



NMEA2000 ON PORT 3

When you have a NMEA2000 plotter connected to the NMEA2000 bus check this box and tick the boxes of which variables you want to transmit.

B&G NMEA2000 USER CHANNELS

Select custom data here like loadcells and Modbus data to be sent to B&G diasplays and plotters over NMEA2000.

GARMIN CUSTOM CHANNELS ON NMEA2000

If you have Garmin displays on your system and you want to send Loadcell-, Polar-, Modbus data to them you can select which data you want to send to it. The Garmin protocol has a maximum of 18 custom channels to receive

SAILMON LOGS USER VARIABLES

If you have the Sailmon app to show and log data select custom variables here to be included there.

3.3.4 SIMULATION

Puts the E4 in simulation mode.

3.4 BACKLIGHT

3.4.1 ELEMENT 7 AND 10

All Element 7 and 10 displays are fitted with an ambient light sensor, to control automatic backlighting. The Backlight menu gives you the ability to manually adjust your Sailmon displays backlight to your desired level. When left in default the Element displays will automatically adjust the screens backlight. You can group displays on your vessel to dim or brighten at different levels. In each group the average of lux of all displays in that group are used to determine the backlight level.

Backlight levels can also be adjusted manually using button actions from the Sailmon Buttonbox see 4.6.3

3.4.2 E-INK FRONTLIGHT

Sailmon E-Ink displays do not have a light sensor and only need light at night time and as such operate opposite from Element displays. They only need frontlight for night time use. It is good practice to just set it at 20% so when night time arrives the displays are lit already. During daytime it will not be visible and power consumption is negligble.

3.5 DISPLAY SETTINGS

Screen modes is to control your Element displays; you can set them to standby or sleep mode. When the mode is set to standby or sleep manually, it will remain in either mode until the ship starts traveling or when Navdesk is used again. In Standby mode, the downloaded screen saver image is shown, while in sleep mode the screen turns off. You can also enable automatic screen mode switching, which will occur when the ship is not travelling. To enable automatic switching, set time values for both modes, the timers will automatically start when the ship stops travelling.

You can setup a custom standby image for your displays when you are docked like yours boat logo, which is stored as a JPG or PNG file on the E4.

Here you can also select a custom font in ttf (TrueType) format.

3.6 COMMISSIONING

The commissioning menu is used for initial system setup and debugging; you will have these sub menu options:

3.6.1 DISPLAY DEFINITION

This menu is for setting up your Element and E-Ink displays here you need to give your elements a position other than zero (can be the same if you want to duplicate), each individual screen will have its own IP address and SUN number (Sailmon Universal Number). You can then name your Display to your desire to make differentiating them easier. You can group them in this menu as well for backlighting purposes.

The **backlight** group assignment is important if you want to control backlight using the Sailmon buttons (see secton Buttons/Alarms). **From this page you can also add a virtual display that can be used by WIFI-enabled devices through the Screen view app.**

Note: Videos are not displayed in Screenview.

3.6.2 SENSOR DEFINITION

The sensors page is a setup and diagnostics tool to read, measure and get an overview of all sensors that are providing inputs. Data is raw data at the rate in ms it is coming in at. You can give your sensors a more relevant name here as well.

3.6.3 BUTTONS / ALARMS

If you have a Buttonbox, up to 8 buttons can be connected. Select the action for the desired display here. You may need help from somebody watching which display is being changed. You have several options here, change pre-sets per display which are defined by their position set in Display definition. Or change pre-set for all displays.

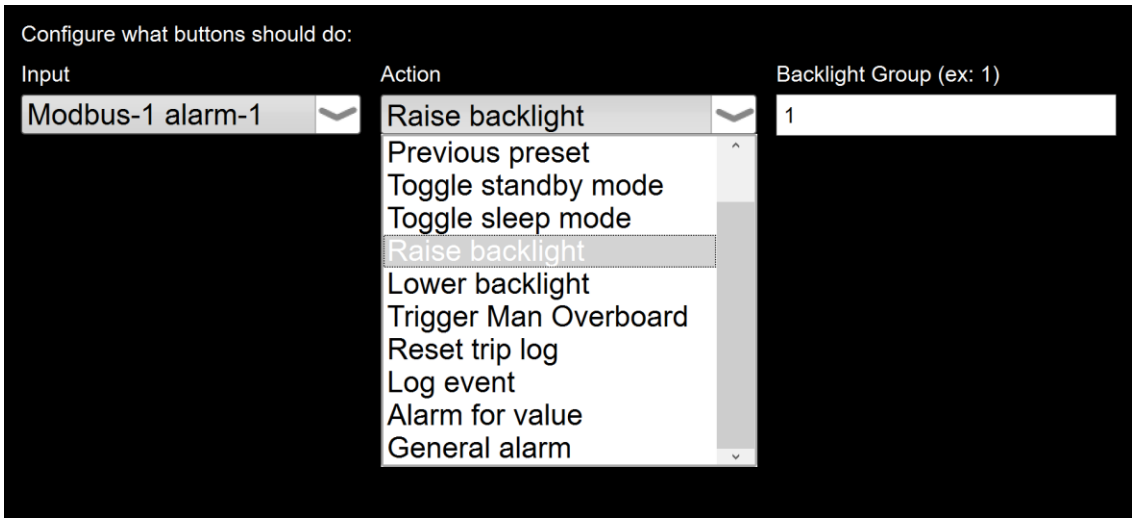
Backlight for Element displays can be controlled here as well. Backlight action is defined by the backlight groups displays reside in. It is therefore important to define your backlight groups.

Backlight action is performed in 6 button presses progressively from 0.2%-2%-4%-8%-50%-90%-100%.

MOB activation- activates a waypoint in a plotter or navigation software.

General Alarm- an alarm input from a PLC system can be defined here with a custom text which can be displayed in an alarms element on a display:

Alarm for Value sets an alarm for a certain variable by changing the background to Red. When the checkbox “Switch to Alarm pre-set” is ticked the pre-set page Alarm will be activated. This function is only available when a PLC is connected.



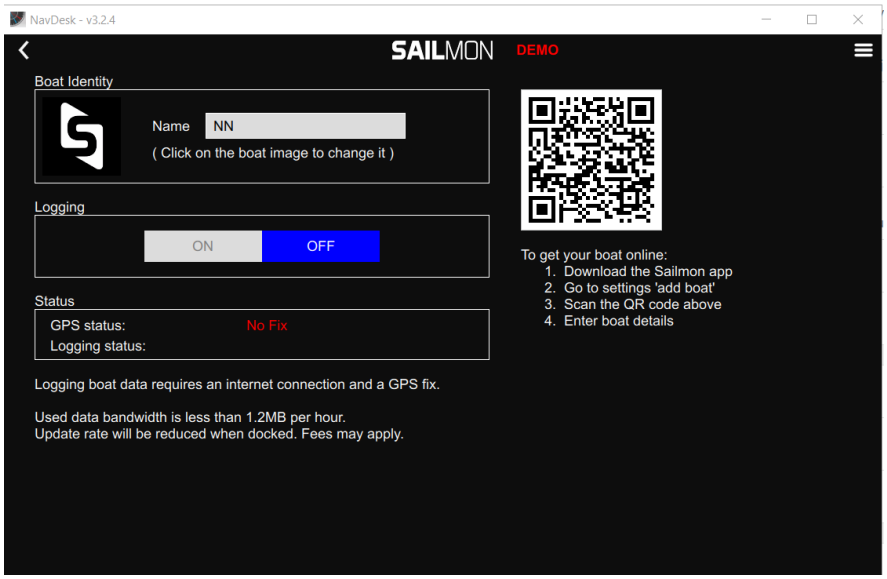
NOTE: When you order a Buttonbox we need to program it with an IP address so we need information on the IP address range on your boat before we ship it. We will also need to send a setup file to activate Button inputs.

3.6.4 LOGGING

The Sailmon Logging menu allows you to setup and link your E4 to your Sailmon app account to log all your data to the cloud server.

To connect your E4 to your Sailmon account download the **Sailmon** App to your mobile phone. Log in or create a new Sailmon account. Navigate to Profile> Boats and Devices>Add a boat. From here tap add a boat and Sailmon E4. Once you click this your camera will open and you will be asked to scan the QR code from NavDesk. Your E4 needs to be online to register.

Once the E4 has a GPS fix the E4 will start logging data. The E4 processor has 5 days of data storage. As soon as the E4 has an internet connection, data will be uploaded to the cloud.. You do have the option to turn off logging on this page.



Logout

The logout button takes you back to the sign in page

3.7 BACKUP RESTORE

3.7.1 BACKUP

You can make a backup of your settings, which will save all settings on your E4 into a file. We recommend doing this if you plan on experimenting with new settings, so you can always switch back to a working version.

3.7.2 RESTORE

Restore will allow you to select and upload a backup that you have made

3.7.3 RESET TO FACTORY DEFAULTS

Reset to factory defaults will remove all your settings and bring the E4 back to its original state.

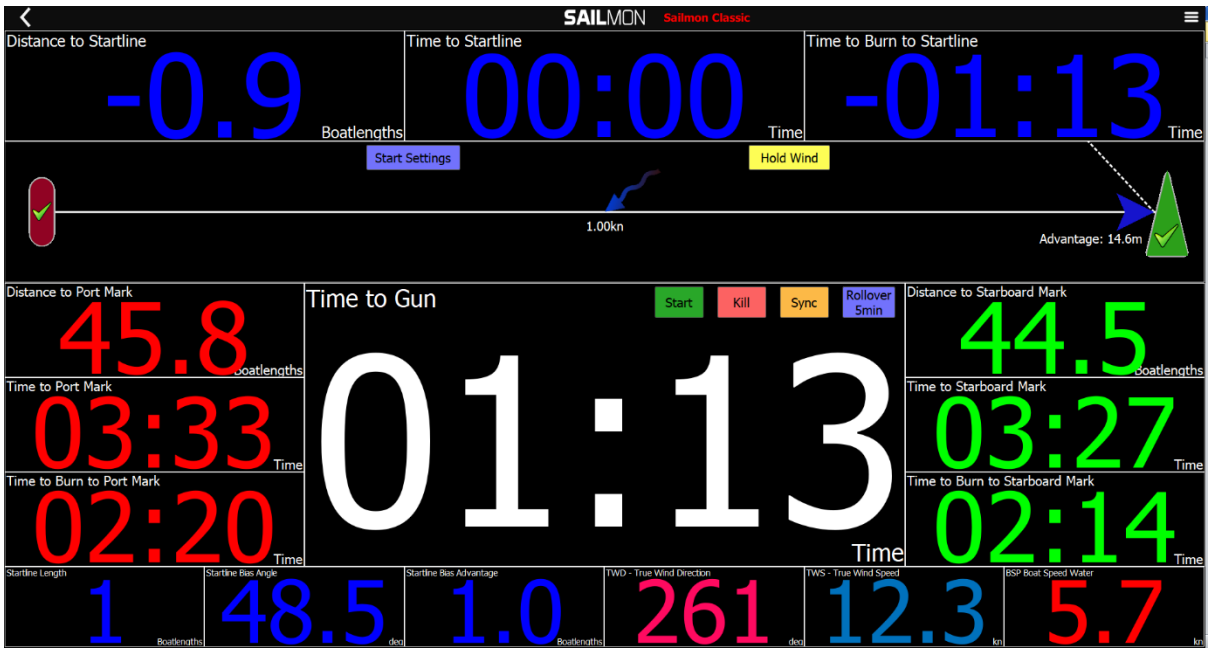
4. RACING

In racing you can select your polars and control your start.

4.1 START

This provides a start page, which allows you to ping the ends of the startline, once you have pinged the ends, the E4 will calculate and provide you with valuable data to help you during the start.

- To set Port and Stbd startline marks press the relevant mark and click when the bow is close to the mark.
- Start Settings-Basic settings of boatlength and distance GPS to Bow.
- Hold wind- In the pre start the wind can be very disturbed. Set the TWD and TWS here to hold wind on one value for pre-start timings.
- Start- Set and start the gun.
- Kill- stop the pre start procedure
- Sync- Sync the time and restart
- Rollover- Add 5 mins to current countdown.



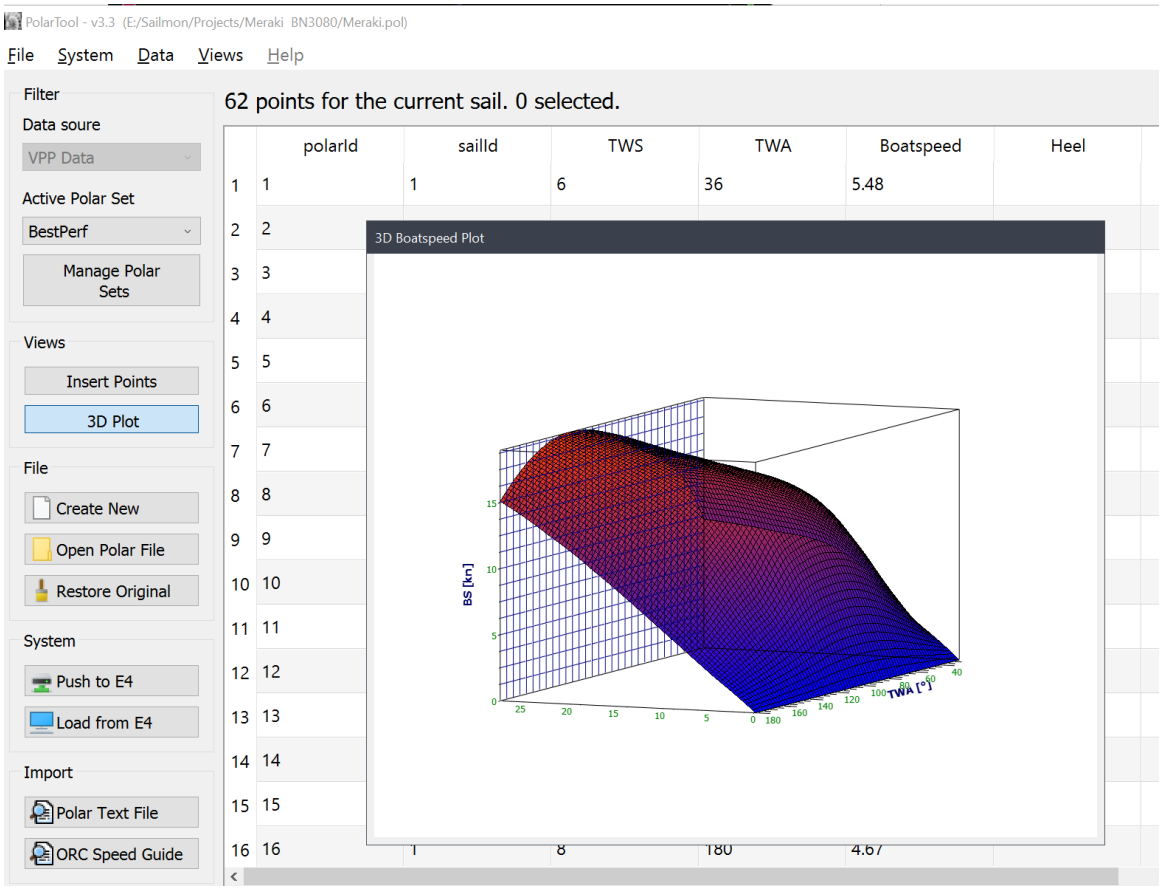
4.2 POLARS

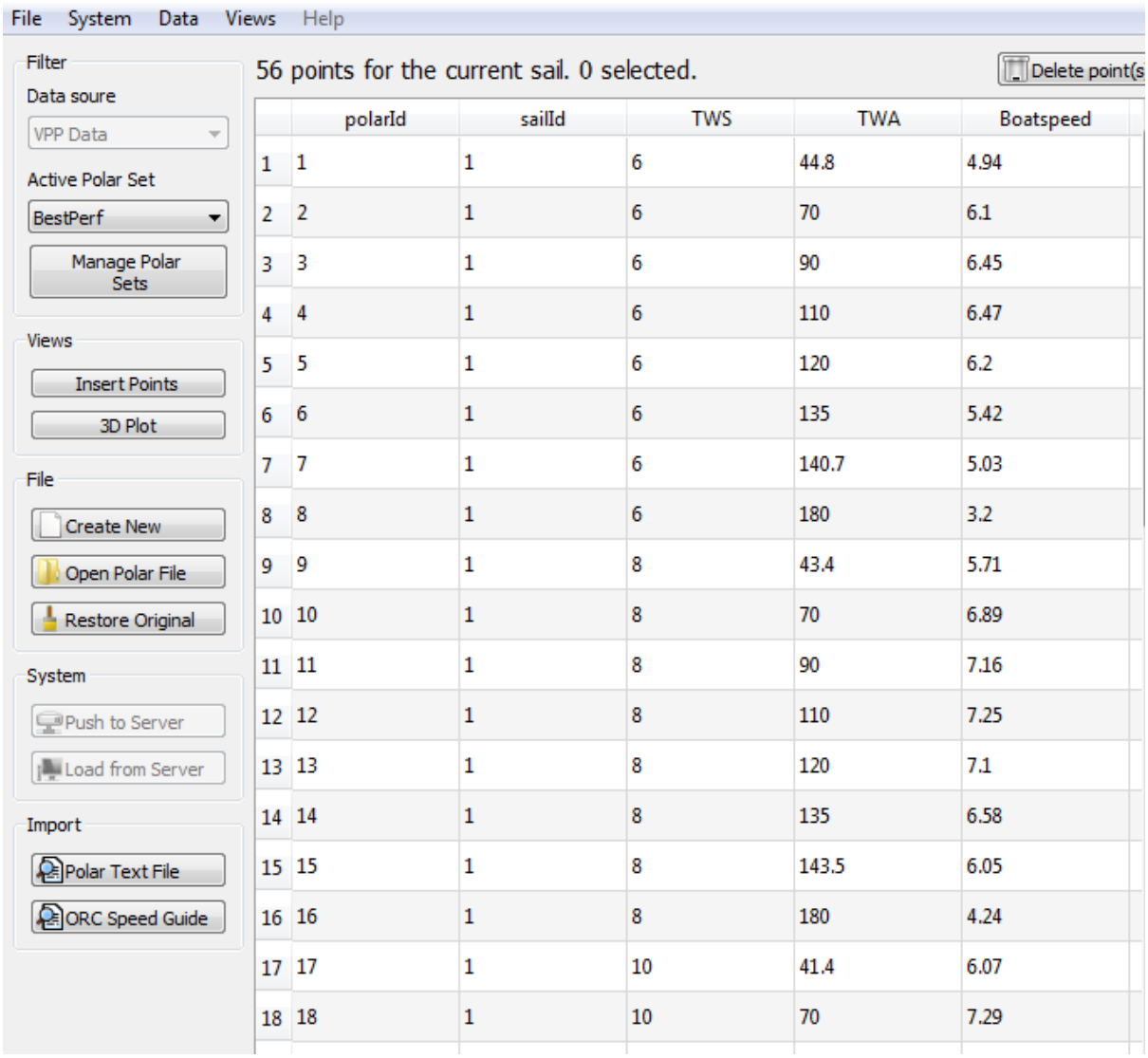
To upload a polar to the E4 use the Polartool to import/alter and name your polars.
Open Polar tool from the Start menu.
To import the polarfile it must be in this format it can be in .txt format:
TWS wa1 vs1 wa2 vs2 etc.
6 0 0 43.6 6.09 60 7.30 90 7.74 110 7.73 135 6.16 136.3 6.03 180 3.00
Make sure the polar runs from 0 degrees TWA to 180 degrees TWA.

If you have a polar text file in the Expedition format like this:

```
6    30   2.50  49   4.40  60   5.10  75   5.60  90   5.80  105  5.83  120  5.40  135  4.70  142  4.30  180  3.10
8    30   3.20  49   5.30  60   6.15  75   6.57  90   6.75  105  6.78  120  6.50  135  5.89  145  5.25  180  4.04
10   30   3.50  47   5.85  60   6.65  75   7.00  90   7.15  105  7.25  120  7.10  135  6.70  151  5.90  180  4.95
12   30   3.80  46   6.00  60   6.90  75   7.30  90   7.40  105  7.60  120  7.52  135  7.20  164  6.15  180  5.80
16   30   4.10  45   6.25  60   7.10  75   7.55  90   7.87  105  7.90  120  8.20  135  8.00  173  7.05  180  6.95
20   30   4.00  45   6.30  60   7.20  75   7.70  90   8.10  105  8.20  120  8.60  135  8.70  174  7.60  180  7.50
```

To import select data>import polar text file and select the polar to import.
The polar will be imported and the values displayed. Select Manage Polar Sets button to rename the polar.
You can view your polar in 3D view by pressing 3D plot:





	polarId	sailId	TWS	TWA	Boatspeed
1	1	1	6	44.8	4.94
2	2	1	6	70	6.1
3	3	1	6	90	6.45
4	4	1	6	110	6.47
5	5	1	6	120	6.2
6	6	1	6	135	5.42
7	7	1	6	140.7	5.03
8	8	1	6	180	3.2
9	9	1	8	43.4	5.71
10	10	1	8	70	6.89
11	11	1	8	90	7.16
12	12	1	8	110	7.25
13	13	1	8	120	7.1
14	14	1	8	135	6.58
15	15	1	8	143.5	6.05
16	16	1	8	180	4.24
17	17	1	10	41.4	6.07
18	18	1	10	70	7.29

When you are ready editing and naming the polar select System> Push to server to upload the polar to the E4.

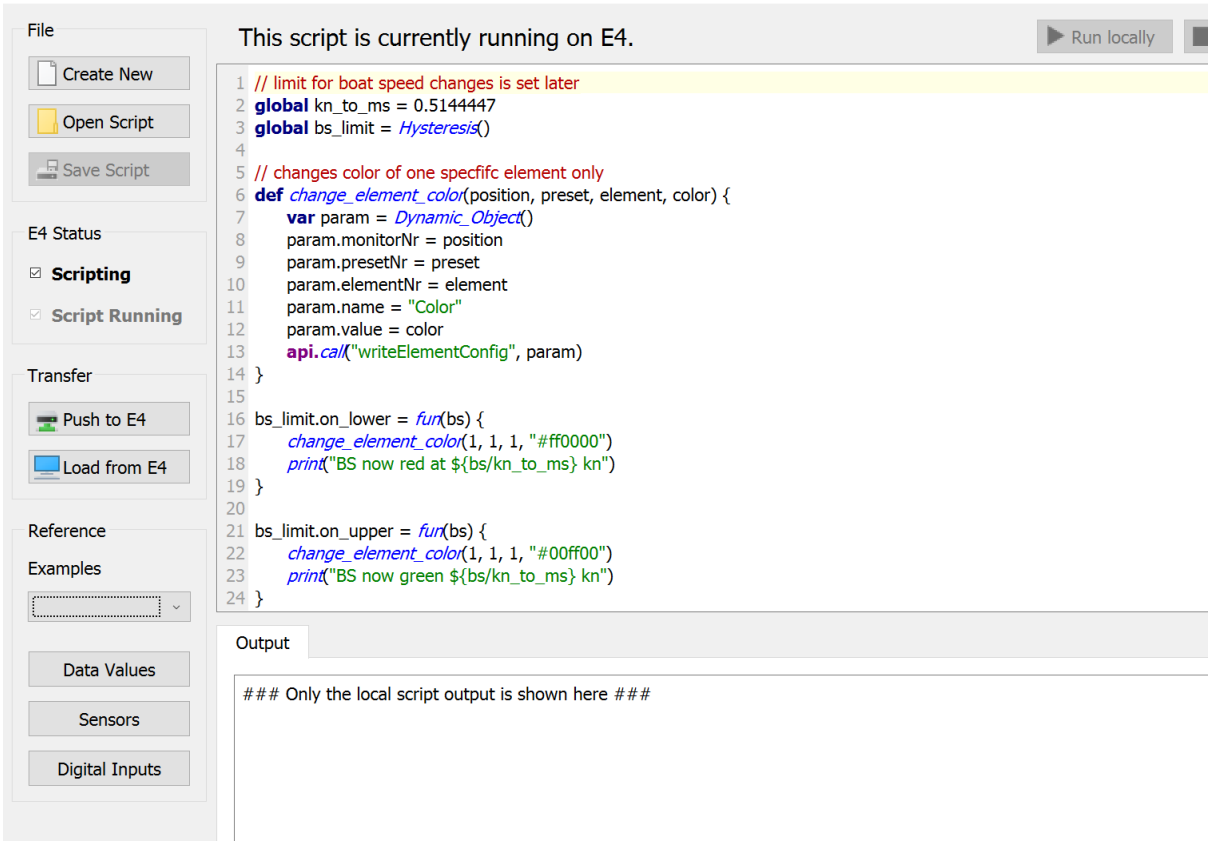
5. SCRIPTING

Scripting is a new Sailmon feature which can be purchased from Sailmon. Using this feature inputs and alarms can be configured. For example double wind sensor inputs and colour changes of boatspeed depending on target boatspeed.

Alarms can be configured here as well like windspeed, heel angle or load alarms.

These scripts will run in the E4 processor and are written using Chai script language a version of Javascript.

Sailmon will produce these scripts according to costumer requirements and then will be uploaded to the E4.

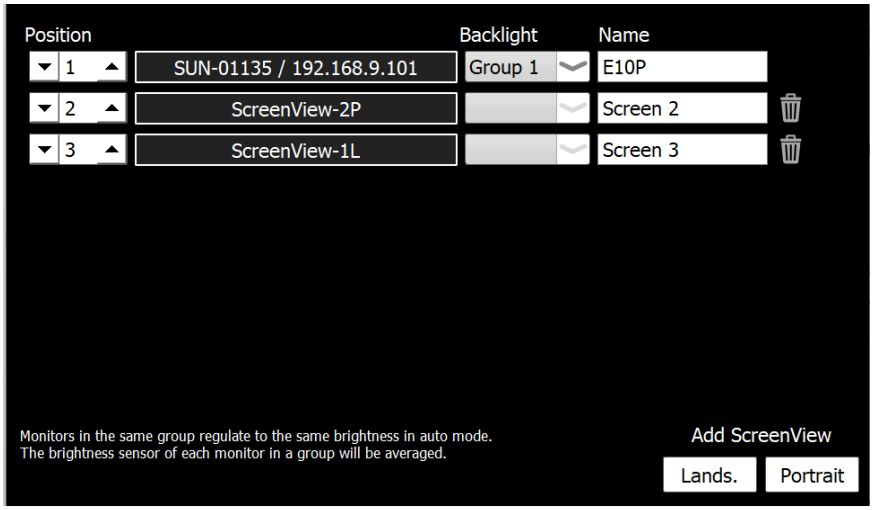


CONTACT US IF YOU ARE INTERESTED IN THE SCRIPTING FEATURE

6. APPs

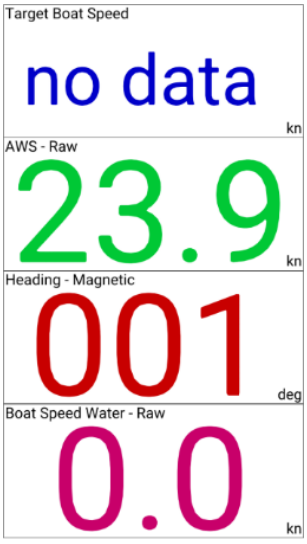
6.1 SCREENVIEW

With the Screenview app, which can be downloaded for Android and iOS devices, you can add virtual displays which are setup in Setup> Commissioning>Display Definition and click on either Landscape or Portrait button under Screenview. When the iOS or Android device is connected to the same network as the E4 selected views can be displayed. To change to a different layout press and hold anywhere on the device display and another option can be chosen.



6.2 CREWVIEW

With the Crewview App a standard layout of 1 through 4 variables can be displayed. To change a variable press and hold on the display and choose from the list. To change the number of variables displayed swipe left or right with 2 fingers. This app is specially designed for smartphones, either Android or iOS.



7. TROUBLESHOOTING

7.1 NOT CONNECTING

Navdesk or displays are not opening (stays on 'Connecting').This means there is no ethernet connection between the E4 and displays or Navdesk. IP addresses of displays are all in same range i.e. 192.1268.1.xx .

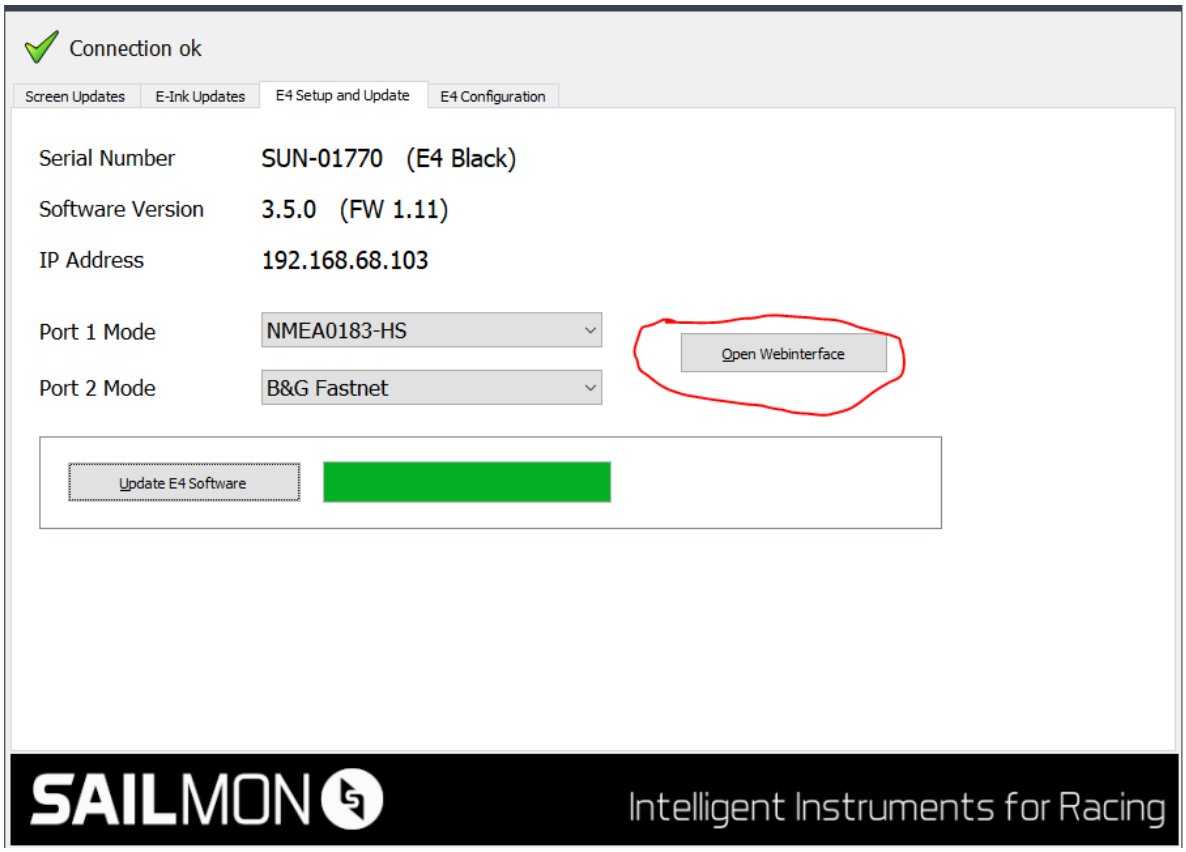
Check the following:

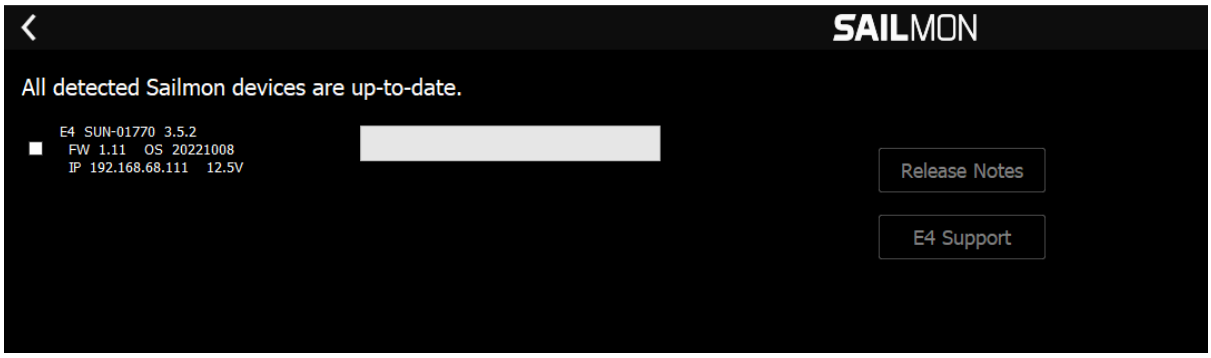
- Are all physical ethernet connections good (no corrosion and all connections are solid)
- Check if firewall of PC is blocking traffic
- Check if the PC is set on auto config IP range (IP 169.254.xx.xx) if so the PC will probably not connect, there is no DHCP server active.
- If more VLAN's are setup make sure NAT (Network Address Translation) is configure properly.

7.2 SUPPORT INFORMATION AND SAILMON TOOL

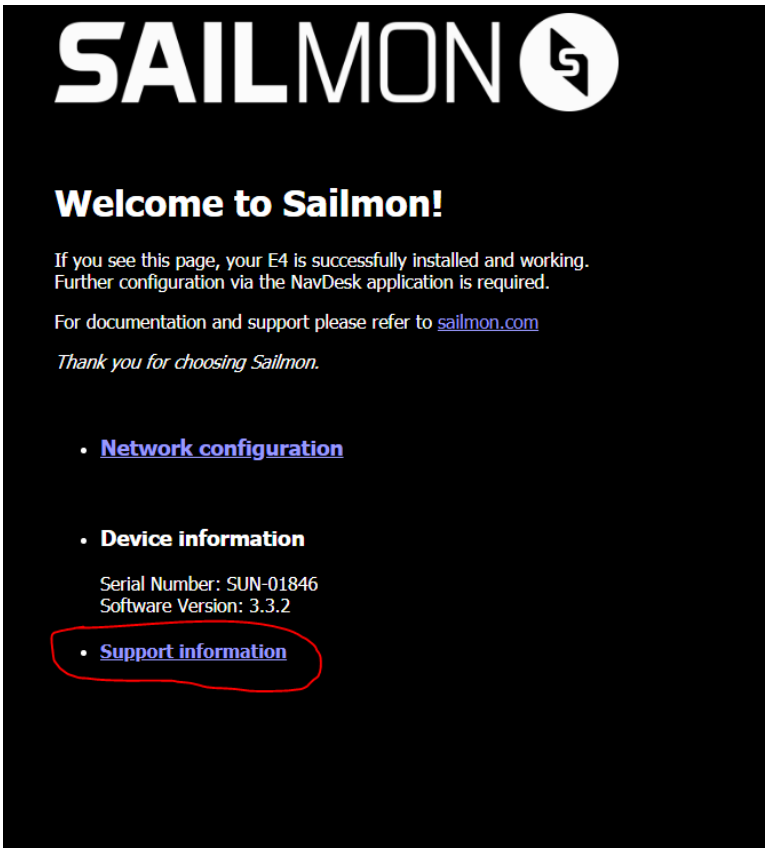
Occasionally we may require information of your system to assist in troubleshooting. For this, you need to open **SailmonTool** which can be found in the menu folder of Sailmon.

Or in **Navdesk** go to Setup>Updates and click E4 Support





Go to Open web interface in the tab E4 setup and update, when the webpage has opened click on Support Information. Save that page and email it to support@sailmon.com with a description of the issues you are finding.



When you click on Network configuration you can set the E4 as a DHCP server. Only do this when the system is not connected to a router or other DHCP server.