

# OCEANLINK 7 MARINE DISPLAY

USER MANUAL

rev. AC



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# INTRODUCTION

OceanLink Master 7" is a multifunction display that lets you monitor engines and related sensor parameters. Up to four engines can be connected to the display.

The integrated NMEA 2000 gateway let you acquire engine data also via analog sensors or SAE J1939, to then convert and distribute them on NMEA 2000 network.

The display manages up to six resistive sensors, three voltage sensors and one digital alarm.

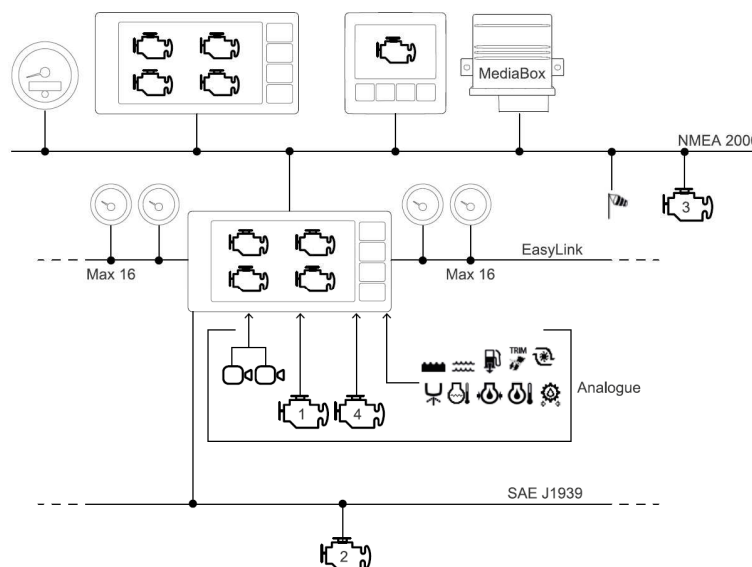
All data are also distributed on two EasyLink channels to a maximum of 16 52mm OceanLink gauges per channel.

NMEA 2000 connectivity lets you view navigation data from other devices on the network, such as wind, compass, GPS, speed, and depth data.



## ARCHITECTURE

Following is an example of an application with two displays, one used as a gateway and the other as a NMEA 2000 monitor.



# SAFETY INFORMATION

## WARNING

- No smoking! No open fire or heat sources!
- The product was developed, manufactured and inspected according to the basic safety requirements of EC Guidelines and state-of-the-art technology.
- The instrument is designed for use in grounded vehicles and machines as well as in pleasure boats, including non-classified commercial shipping.
- Use our product only as intended. Use of the product for reasons other than its intended use may lead to personal injury, property damage or environmental damage. Before installation, check the vehicle documentation for vehicle type and any possible special features!
- Use the assembly plan to learn the location of the fuel/hydraulic/compressed air and electrical lines!
- Note possible modifications to the vehicle, which must be considered during installation!
- To prevent personal injury, property damage or environmental damage, basic knowledge of motor vehicle/shipbuilding electronics and mechanics is required.
- Make sure that the engine cannot start unintentionally during installation!
- Modifications or manipulations to veratron products can affect safety. Consequently, you may not modify or manipulate the product!
- When removing/installing seats, covers, etc., ensure that lines are not damaged and plug-in connections are not loosened!
- Note all data from other installed instruments with volatile electronic memories.

## SAFETY DURING INSTALLATION

- During installation, ensure that the product's components do not affect or limit vehicle functions. Avoid damaging these components!
- Only install undamaged parts in a vehicle!
- During installation, ensure that the product does not impair the field of vision and that it cannot impact the driver's or passenger's head!
- A specialized technician should install the product. If you install the product yourself, wear appropriate work clothing. Do not wear loose clothing, as it may get caught in moving parts. Protect long hair with a hair net.
- When working on the on-board electronics, do not wear metallic or conductive jewelry such as necklaces, bracelets, rings, etc.
- If work on a running engine is required, exercise extreme caution. Wear only appropriate work clothing as you are at risk of personal injury, resulting from being crushed or burned.
- Before beginning, disconnect the negative terminal on the battery, otherwise you risk a short circuit. If the vehicle is supplied by auxiliary batteries, you must also disconnect the negative terminals on these batteries! Short circuits can cause fires, battery explosions and damages to other electronic systems. Please note that when you disconnect the battery, all volatile electronic memories lose their input values and must be reprogrammed.
- If working on gasoline boat motors, let the motor compartment fan run before beginning work.
- Pay attention to how lines and cable harnesses are laid so that you do not drill or saw through them!
- Do not install the product in the mechanical and electrical airbag area!
- Do not drill holes or ports in load-bearing or stabilizing stays or tie bars!
- When working underneath the vehicle, secure it according to the specifications from the vehicle manufacturer.
- Note the necessary clearance behind the drill hole or port at the installation location. Required mounting depth: 65 mm.

## **SAFETY INFORMATION**

- Drill small ports; enlarge and complete them, if necessary, using taper milling tools, saber saws, keyhole saws or files. Deburr edges. Follow the safety instructions of the tool manufacturer.
- Use only insulated tools, if work is necessary on live parts.
- Use only the multimeter or diode test lamps provided, to measure voltages and currents in the vehicle/machine or boat. Use of conventional test lamps can cause damage to control units or other electronic systems.
- The electrical indicator outputs and cables connected to them must be protected from direct contact and damage. The cables in use must have enough insulation and electric strength and the contact points must be safe from touch.
- Use appropriate measures to also protect the electrically conductive parts on the connected consumer from direct contact. Laying metallic, uninsulated cables and contacts is prohibited.

## **SAFETY AFTER INSTALLATION**

- Connect the ground cable tightly to the negative terminal of the battery.
- Reenter/reprogram the volatile electronic memory values.
- Check all functions.
- Use only clean water to clean the components. Note the Ingress Protection (IP) ratings (IEC 60529).

## **ELECTRICAL CONNECTION**

- Note cable cross-sectional area!
- Reducing the cable cross-sectional area leads to higher current density, which can cause the cable cross-sectional area in question to heat up!
- When installing electrical cables, use the provided cable ducts and harnesses; however, do not run cables parallel to ignition cables or to cables that lead to large electricity consumers.
- Fasten cables with cable ties or adhesive tape. Do not run cables over moving parts. Do not attach cables to the steering column!
- Ensure that cables are not subject to tensile, compressive or shearing forces.
- If cables are run through drill holes, protect them using rubber sleeves or the like.
- Use only one cable stripper to strip the cable. Adjust the stripper so that stranded wires are not damaged or separated.
- Use only a soft soldering process or commercially available crimp connector to solder new cable connections!
- Make crimp connections with cable crimping pliers only. Follow the safety instructions of the tool manufacturer.
- Insulate exposed stranded wires to prevent short circuits.
- Caution: Risk of short circuit if junctions are faulty or cables are damaged.
- Short circuits in the vehicle network can cause fires, battery explosions and damages to other electronic systems. Consequently, all power supply cable connections must be provided with weldable connectors and be sufficiently insulated.
- Ensure ground connections are sound.
- Faulty connections can cause short circuits. Only connect cables according to the electrical wiring diagram.
- If operating the instrument on power supply units, note that the power supply unit must be stabilized and it must comply with the following standard: DIN EN 61000, Parts 6-1 to 6-4.

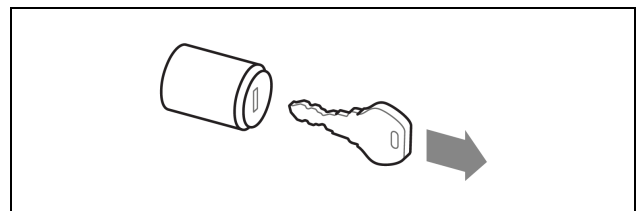
# INSTALLATION

## ⚠ WARNING

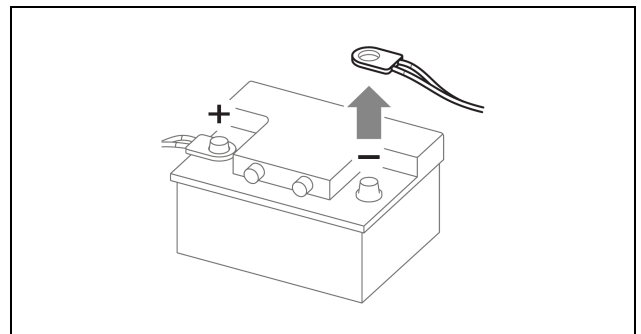
Before starting work, disconnect the negative terminal of the battery to avoid the risk of a short circuit. If the vehicle is equipped with additional batteries, the negative terminal of all batteries must also be disconnected if necessary. Short circuits can burn cables, explode batteries and cause damage to other electronic systems. Remember that by disconnecting the battery, all data entered in the temporary electronic memory will be lost and will have to be reprogrammed.

## BEFORE THE ASSEMBLY

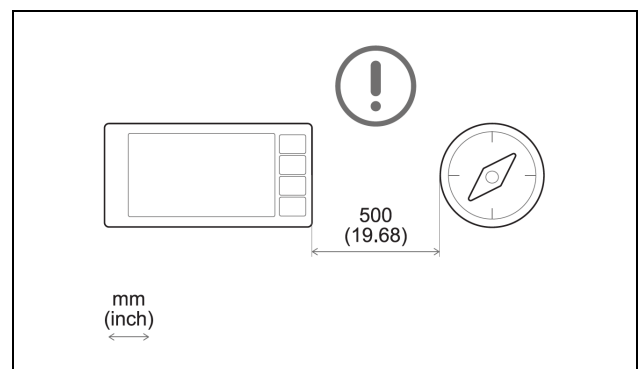
1. Before starting work, switch off the ignition and remove the ignition key. If necessary, remove the main power switch.



2. Disconnect the negative terminal of the battery. Do not allow the battery to be reconnected by mistake.



3. When mounting the device in the vicinity of a magnetic compass, maintain a protective distance from the compass.



4. Purchase an NMEA 2000 drop cable with five-pin M12 connector (max drop cable length 6 m) and a video cable with a compatible four-pin M12 connector (A2C1845710001).

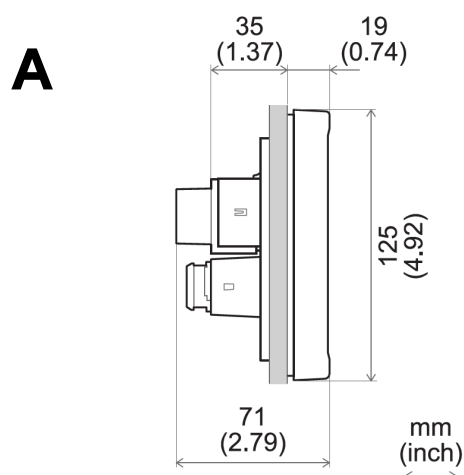
## PANEL MOUNTING

### ⚠ WARNING

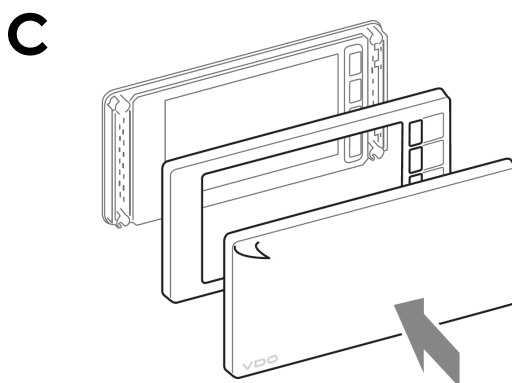
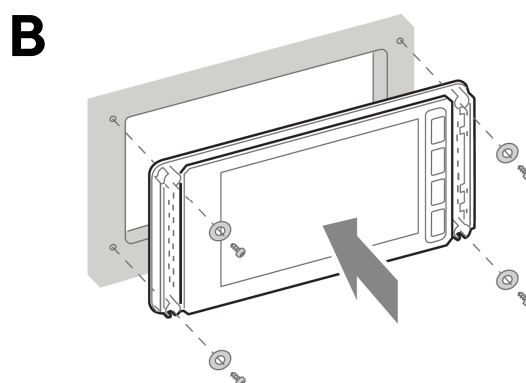
- Do not drill holes or installation openings in supporting or stabilizing beams!
- The mounting location must have sufficient clearance behind the mounting holes or openings.
- Drill small holes with the drill, if necessary, enlarge them using a conical cutter, scroll saw, tail saw or file and finish them. Deburr the edges. It is essential to observe the safety instructions of the tool manufacturer.

1. If installed, remove the bezel.
2. Drill a hole in the panel using the drilling template (see next page of this document) and considering the device dimensions [A].
3. Thread the cables through the hole and connect the connectors.

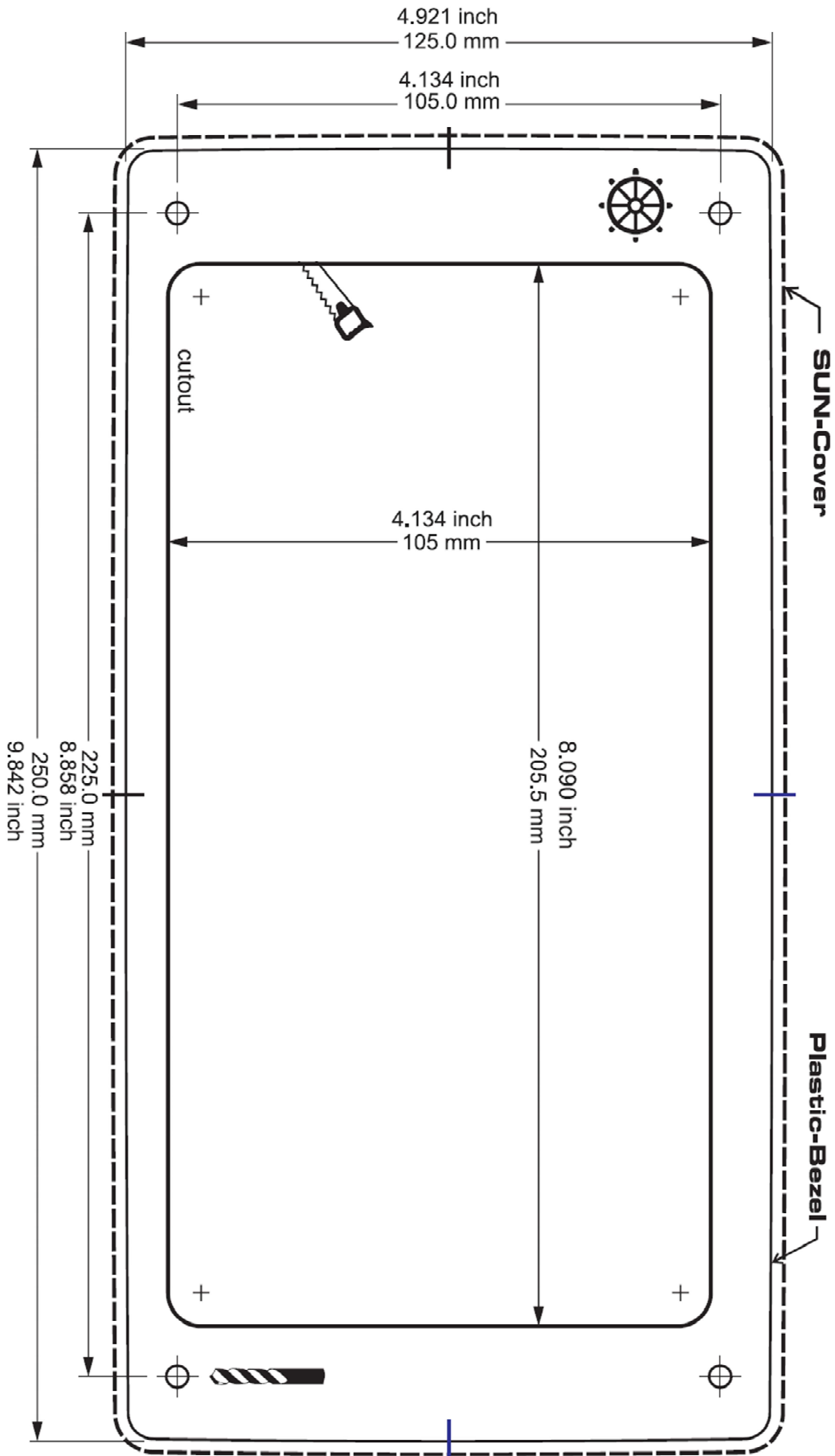
**NOTE:** screw in M12 connectors with care. If they screw with difficulty, remove and screw them back in.



4. Insert the device from the front and tighten the four screws [B].
5. Remove the protection film from the display and make sure it is clean and dry.
6. Install the bezel with the sun cover [C].

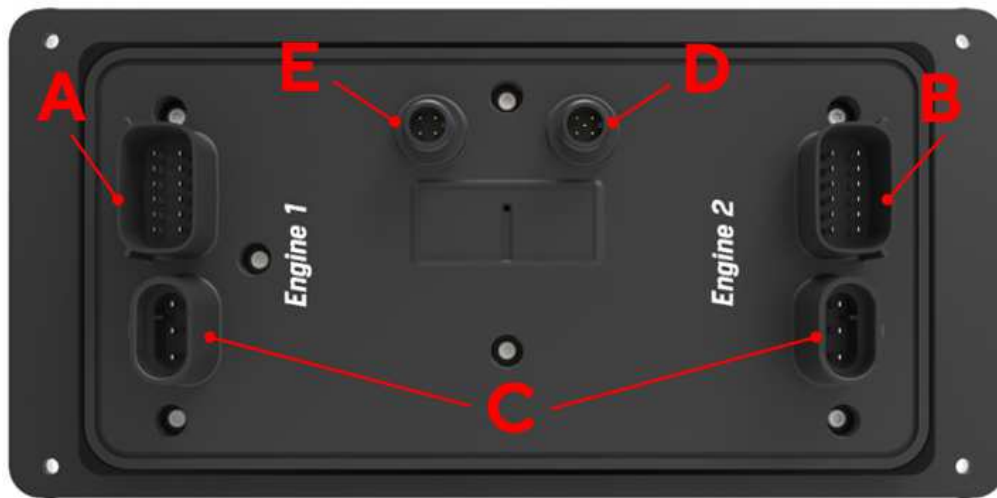


# INSTALLATION



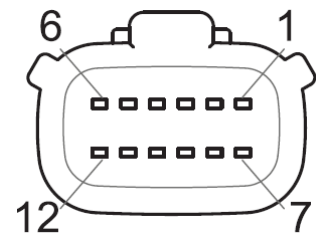


# CONNECTIONS



## ENGINE CONNECTOR [A]

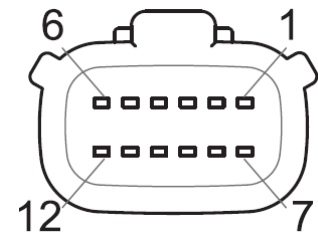
| Pin No. | Wire color   | Description                      |
|---------|--------------|----------------------------------|
| 1       | Red          | KL. 30 - Battery power 12 / 24 V |
| 2       | Black        | KL. 31 - Ground                  |
| 3       | White        | Alarm output                     |
| 4       | Green        | Frequency sensor signal - RPM    |
| 5       | Blue         | SAE J1939 - CAN H                |
| 6       | Blue / White | SAE J1939 - CAN L                |
| 7       | Yellow       | KL. 15 - Ignition positive       |
| 8       | Grey         | Resistive sensor input           |
| 9       | Brown        | Resistive sensor input           |
| 10      | Orange       | 0-5 V sensor input               |
| 11      | Light Blue   | 4-20 mA sensor input             |
| 12      | Violet       | 4-20 mA sensor input             |



Molex MX150 12-poles connector, cable view and wire harness A2C1507870001 (included)

**ENGINE CONNECTOR [B]**

| Pin No. | Wire color   | Description                   |
|---------|--------------|-------------------------------|
| 1       | Pink         | Configurable alarm input      |
| 2       | Black        | KL. 31 - Ground               |
| 3       | White        | Alarm output                  |
| 4       | Green        | Frequency sensor signal - RPM |
| 5       | Blue         | SAE J1939 - CAN H             |
| 6       | Blue / White | SAE J1939 - CAN L             |
| 7       | Yellow       | 0-5 V sensor input            |
| 8       | Grey         | Resistive sensor input        |
| 9       | Brown        | Resistive sensor input        |
| 10      | Orange       | 0-5 V sensor input            |
| 11      | Light Blue   | Resistive sensor input        |
| 12      | Violet       | Resistive sensor input        |



Molex MX150 12-poles connector, cable view and wire harness A2C1507870001 (included)

**EASYLINK CONNECTORS [C]**

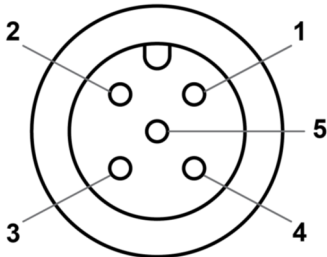
| Pin No. | Description   |
|---------|---------------|
| 1       | 12V Power     |
| 2       | EasyLink Data |
| 3       | GND           |



AMP SuperSeal 1.5 3 poles plug female, cable view

**NMEA 2000® CONNECTOR [D]**

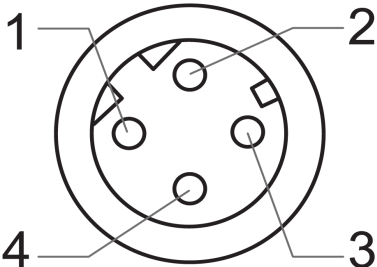
| Pin No. | Description   |
|---------|---------------|
| 1       | Shield        |
| 2       | NET-S (V+)    |
| 3       | NET-C (V-)    |
| 4       | NET-H (CAN H) |
| 5       | NET-L (CAN L) |



Micro-C M12 5 poles plug male, cable view

**VIDEO INPUT CONNECTOR [E]**

| Pin No. | Description   |
|---------|---------------|
| 1       | Video input 2 |
| 2       | Video input 1 |
| 3       | GND 2         |
| 4       | GND 1         |

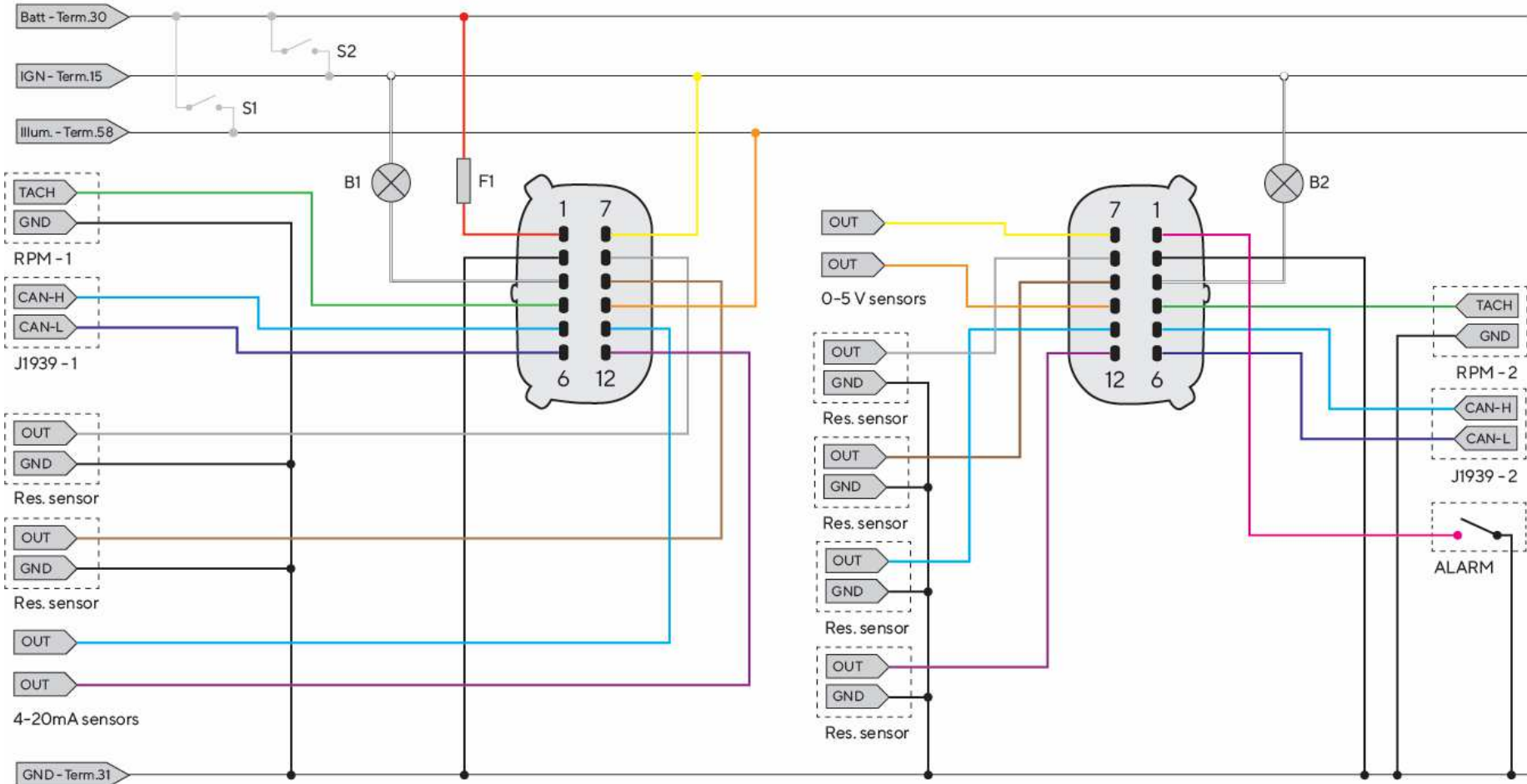


M12 4 poles plug female, cable view

# ELECTRICAL DIAGRAMS

 **WARNING**

- Refer to the safety rules described in the electrical connections section of the safety information chapter of this document!



**Designations in the circuit diagram**

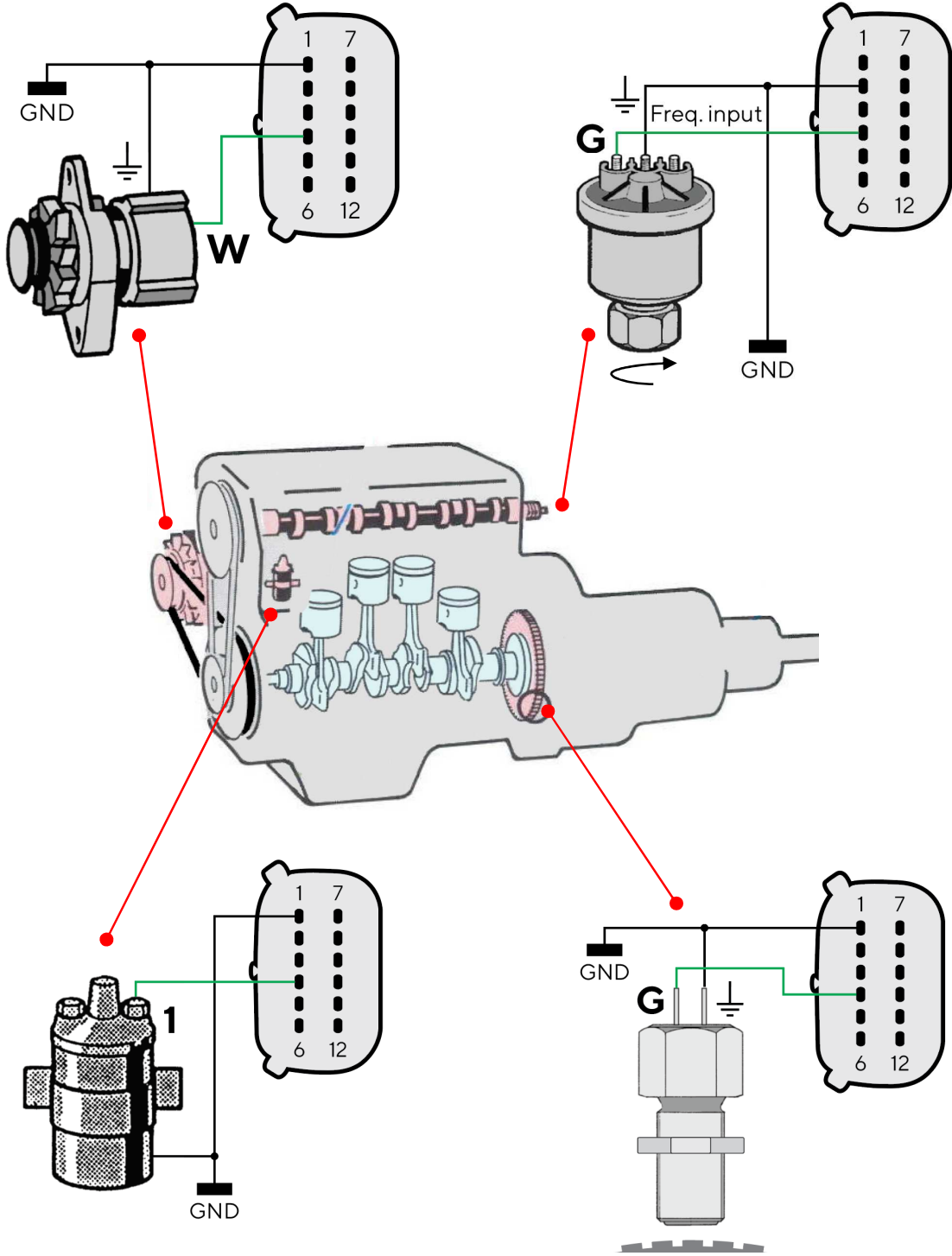
30 - KL.30 - Battery Power 12/24 V  
 15 - KL. 15 - Ignition positive  
 31 - KL. 31 - Ground  
 58 - KL.58 - Illumination positive

S1 - Day/Night mode switch (not included)  
 S2 - Ignition key  
 F1 - 3A fuse (not included)  
 B1/B2 - External acoustic alarm (not included)

RES - Resistive inputs  
 RPM - Frequency inputs  
 ALARM - External digital alarm  
 J1939 - SAE J1939 CAN ports

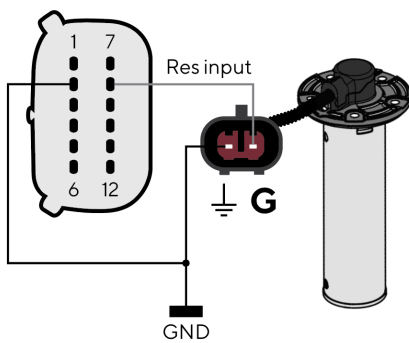
RPM SENSOR CONNECTION

The engine RPM signal can be obtained from different sources, respectively the alternator “W” terminal, the ignition coil terminal “1”, or from dedicated sensors such as a generator or an inductive sensor. It is advisable to use sensors with isolated ground, and it is necessary to ensure that the sensor ground is connected to the display ground to avoid incorrect readings.

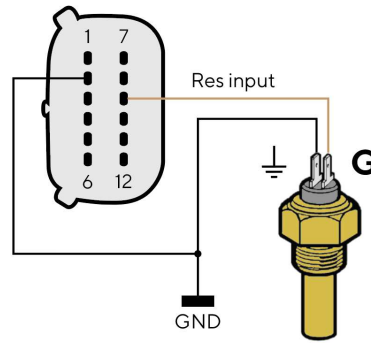


## RESISTIVE SENSOR CONNECTION

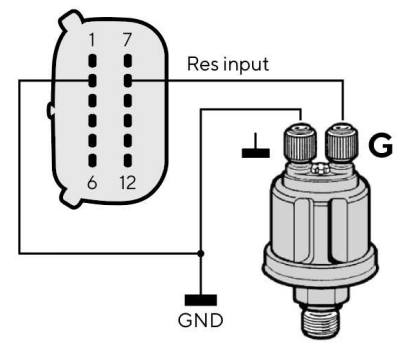
Any sensor connected to a resistive input of the display must be connected as shown in the figure. It is advisable to use sensors with isolated ground, and it is necessary to ensure that the sensor ground is connected to the display ground to avoid incorrect readings.



Tank level sensor connected to resistive input 8



Temperature sensor with isolated ground connected to resistive input 9



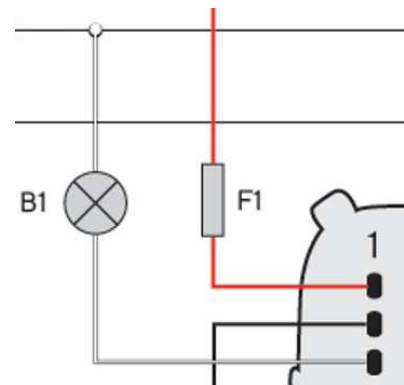
Pressure sensor with isolated ground connected to resistive input 8

## EXTERNAL BUZZER CONNECTION (B1)

The display supports the connection of two external alarms (B1/B2) via the dedicated alarm outputs.

This buzzer/lamp can be powered at different voltages (consult the buzzer manufacturer's manual), as the alarm output is connected to ground inside the display.

It is important to note that the maximum current supported is 500mA.



## DAY / NIGHT MODE SELECTOR SWITCH (S1)

The display allows you to set two display illumination levels for day and night.

It is possible to switch from day mode to night mode (and vice versa) by means of a switch external to the display (S1) connected to the power supply (KL.30), or by connecting to the lights signal onboard KL.58, if present.

Every 0-5V input of the display can be configured for this purpose (see "Sensors' configuration").

**CONNECTION TO THE NMEA 2000® NETWORK**

Once the installation is complete, you can interface the device to the NMEA 2000® network through the dedicated socket on the wiring harness.

Be sure to tighten the M12 connector by screwing it onto its counterpart in order to preserve its watertightness.

A drop cable is not required unless the total length of the supplied wiring is not sufficient to reach the NMEA 2000® backbone. In this case, the total length can be extended using one of the accessory drop cables.

Note that NMEA 2000® does not allow drop cables longer than 6 meters.

Refer to the NMEA 2000® standard for proper network design.





# GETTING STARTED

## OPERATION

OceanLink Display 7" TFT is a versatile device. It lets you control all connected engines in a single monitoring point and at the same time. The engine whose data is displayed is selected during data page configuration.

## PRIORITY OF RECEIVED SIGNALS

If the same data is available from more than one source for the same engine, the received signal priority is the following:

- Analog input
- SAE J1939
- NMEA 2000





## SWITCHING ON AND OFF

The on/off mode depends on the ignition signal on terminal 15 (Engine1 connector, pin 7).

At power up, logo and software version followed by a security message appear when turned on followed by the last data page viewed before turned off.

You can customize the loading image displayed at power up using the Veratron Configuration Tool. Contact your veratron dealer for more information.

## BUTTON FUNCTIONS

| Button  | Name            | Function   |
|---|-----------------|--|
|  | MENU            | Briefly press: <ul style="list-style-type: none"> <li>• Open the menu</li> <li>• Return to the previous menu</li> </ul> Hold down: <ul style="list-style-type: none"> <li>• From any point to return to the data pages</li> </ul>                    |
|  | UP<br>DOWN      | Briefly press: <ul style="list-style-type: none"> <li>• Scroll pages/options</li> </ul> Pressed simultaneously: <ul style="list-style-type: none"> <li>• Set the display and connected 52 mm gauges brightness</li> </ul>                            |
|  | ENTER           | Briefly press: <ul style="list-style-type: none"> <li>• Open a sub-menu</li> <li>• Confirm the selection</li> </ul> Hold down: <ul style="list-style-type: none"> <li>• In the MediaBox page to save the selected station radio frequency</li> </ul> |
|  | TOUCH<br>BUTTON | Briefly press: <ul style="list-style-type: none"> <li>• View the data page linked to the button</li> </ul> Hold down: <ul style="list-style-type: none"> <li>• Link the button to the displayed data page</li> </ul>                                 |

**CALIBRATION WIZARD**

The Calibration wizard appears when first turned on after reset and every time turned on until sensors are calibrated.

The display prompts you to configure your sensors.

Choose Yes, to open menu SENSOR CONFIG.

Choose No, to display the first default data page and configure the sensors later.

**STARTUP CHECKLIST**

Following are the steps for initial configuration:

1. Connect any sensors to analog inputs.
2. When turned on, read the security message, then select Yes to open the menu SENSOR CONFIG and configure sensors (see "Sensor configuration").
3. Set up general device operations (see "System settings").
4. Add/remove data pages selecting the best layout and data to be viewed (see "Data page configuration").
5. If a page layout with bar graphs is used, customize the minimum and maximum intervals (Bar graph settings, see "System settings").
6. Enable/disable local, NMEA 2000 and J1939 alarms (see "Alarm management").

**UPLOAD A CUSTOM SPLASH LOGO**

A custom splash logo can be loaded from a PC using the veratron Configuration Tool.

For more information, please refer to the veratron Configuration Tool user manual or contact your veratron reseller.

# DATA SCREENS

Data screens show the data received from the various sources. The display can store up to 10 data screens. By default, four screens are displayed, configured to display the previously selected engine, and one page for remote management of a MediaBox multimedia device.

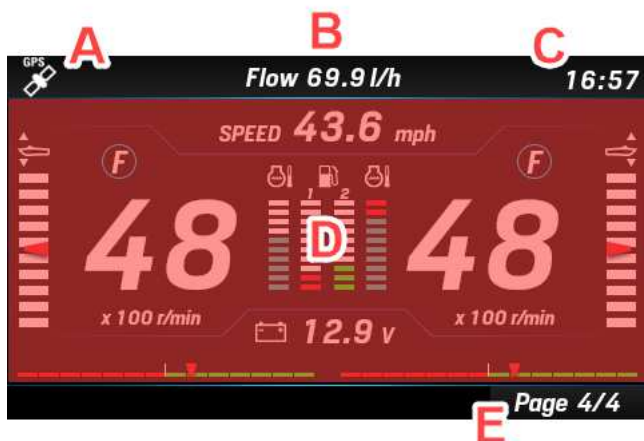
The ALARMS page appears at the end of the data pages if there are active alarms.

## SCREENS SCROLLING

To scroll pages, press the UP or DOWN buttons or scroll the touch screen horizontally with your finger. To add/delete/edit pages, see "Data page configuration".

## SCREEN LAYOUTS

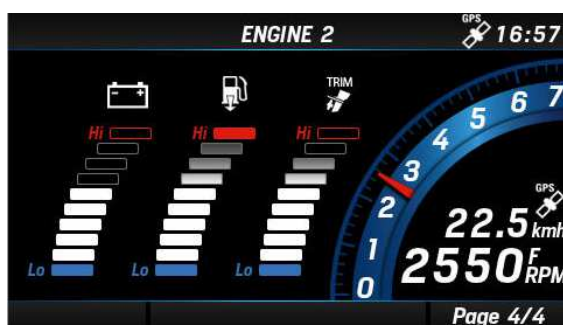
Every screen contains some common elements, which are always displayed independently of the screen layout which is chosen.



| Part | Description                                   |
|------|---|
| A    | GPS signal availability (not included)        |
| B    | Screen title or additional data field (fixed) |
| C    | GPS time (if received)                        |
| D    | Screen content                                |
| E    | Page number                                   |

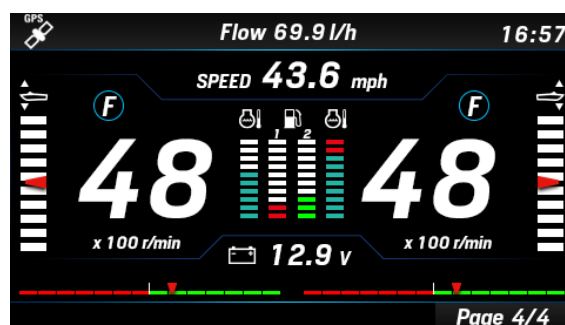
The screen content [D] depends on the screen configuration that the user has selected for a specific screen (see "Screen Configuration").

Each screen can be customized with one of the following available layouts:



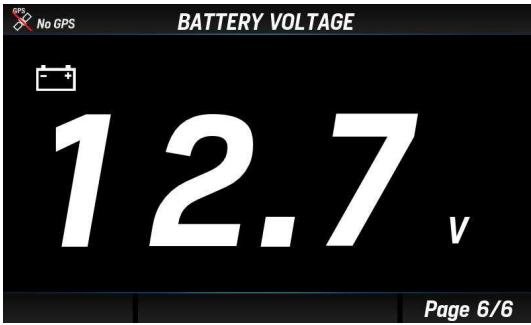
### SINGLE ENGINE layout

with three bar graphs for the three data selected from Boost pressure, Trim, Engine coolant temperature, Battery voltage, Fuel consumption. One engine revolution gauge not editable.



### DUAL ENGINE layout

with three bar graphs for the three defined data: trim, engine coolant temperature, fuel level. Also the rudder angle, the engine speed, the battery voltage, the speed and the gear are displayed.



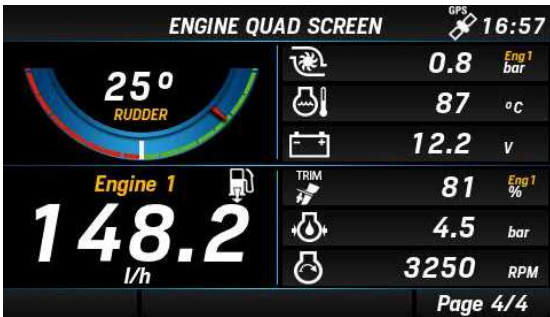
**SINGLE DATA layout**

Single data display. The data value is numeric or displayed by a gauge.



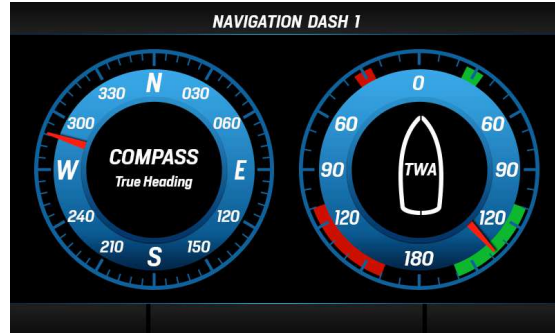
**TRIPLE DATA layout**

Three boxes, from three data to nine data.



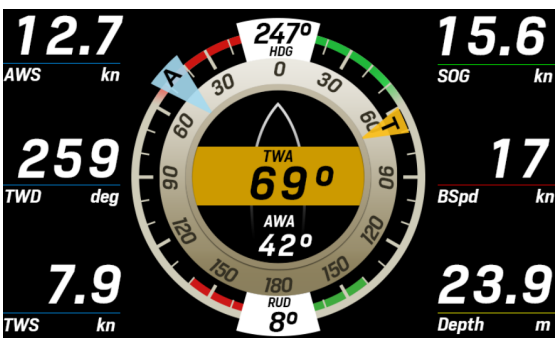
**QUAD DATA layout**

Four boxes, from four data to twelve data.



**NAV DASH screens**

This layout allows to display data in an analog fashion. Three NavDash layouts are available with two, three, or eight gauges into the screen.



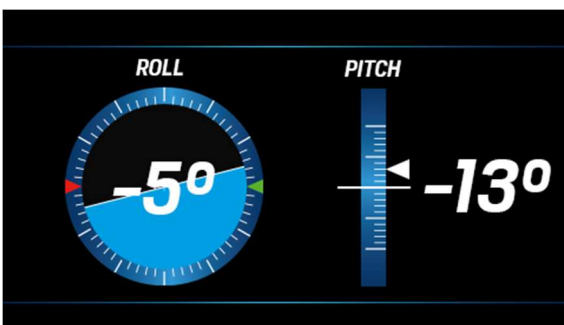
**WIND screen**

Dedicated screen layout for navigation with graphical representation of both apparent and true wind data. Six customizable data fields are designed aside.



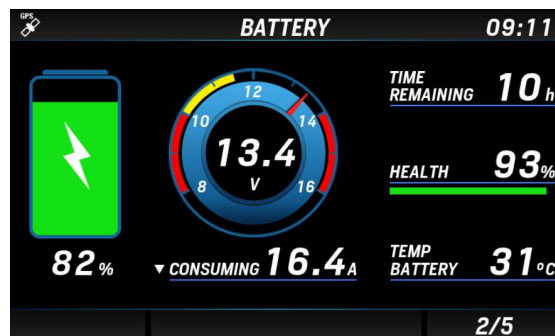
**RADIO screen**

Screen used to operate the MediaBox multimedia unit (See "MediaBox use").



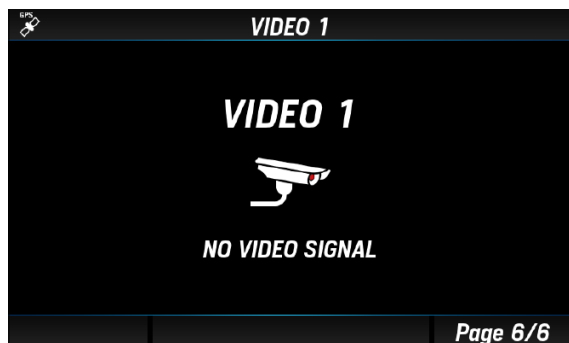
**PITCH AND ROLL screen**

Monitors your boat inclination, with the information retrieved from a connected NavSensor, for example.



**INTELLIGENT BATTERY MONITOR screen**

Dedicated screen for battery monitoring including extensive battery information coming from the Intelligent Battery Sensor (IBS).














**VIDEO screen**

Displays the video received from the external video camera.

**SUPPORTED DATA**

| Icon        | Data                          | Input     |           |          | Output    |          | Unit                  |
|-------------|-------------------------------|-----------|-----------|----------|-----------|----------|-----------------------|
|             |                               | NMEA 2000 | SAE J1939 | Analogue | NMEA 2000 | EasyLink |                       |
|             | Engine rpm                    | x         | x         | x        | x         | x        | rpm                   |
|             | Engine trim                   | x         | -         | x        | x         | x        | %                     |
|             | Engine boost pressure         | x         | x         | x        | x         | x        | bar / psi / kPa       |
|             | Engine coolant temp           | x         | x         | x        | x         | x        | °C / °F               |
|             | Battery voltage               | x         | x         | x        | x         | x        | V                     |
|             | Fuel level (Tank: 1-4)        | x         | x         | x        | x         | x        | %                     |
|             | Fuel rate                     | x         | -         | -        | -         | -        | gal/h or l/h          |
| <b>LOAD</b> | Engine load                   | x         | x         | -        | x         | -        | %                     |
|             | Exhaust temperature           | x         | x         |          |           |          | °C / °F               |
|             | Engine oil temperature        | x         | x         | x        | x         | x        | °C / °F               |
|             | Engine oil pressure           | x         | x         | x        | x         | x        | bar / psi / kPa       |
|             | Transmission oil temperature  | x         | x         | x        | x         | x        | °C / °F               |
|             | Transmission oil pressure     | x         | x         | x        | x         | x        | bar / psi / kPa       |
|             | Engine hours                  | x         | x         | x        | x         | -        | h                     |
|             | Rudder angle                  | x         | -         | x        | x         | x        | °S (stbd) / °P (port) |
|             | Depth                         | x         | -         | -        | -         | -        | m / ft                |
|             | Fresh water level (Tank: 1-4) | x         | -         | x        | x         | x        | %                     |
|             | Waste water level (Tank: 1-4) | x         | -         | -        | x         | x        | %                     |

## DATA SCREENS

| Icon  | Data                      | Input     |           |          | Output    |          | Unit                       |
|---|---------------------------|-----------|-----------|----------|-----------|----------|----------------------------|
|   |                           | NMEA 2000 | SAE J1939 | Analogue | NMEA 2000 | EasyLink |                            |
|    | Sea water temperature     | x         | -         | -        | -         | -        | °C / °F                    |
| -   | Air temperature           | x         | -         | -        | -         | -        | °C / °F                    |
| -   | Atmospheric pressure      | x         | -         | -        | -         | -        | bar / psi / kPa            |
|    | Course over ground (COG)  | x         | -         | -        | -         | -        | °                          |
|    | True heading              | x         | -         | -        | x         | -        | °                          |
| <b>AWA</b>  | Apparent wind angle (AWA) | x         | -         | -        | x         | -        | °                          |
|    | Apparent wind speed (AWS) | x         | -         | -        | x         | -        | km/h                       |
| <b>TWA</b>  | True wind angle (TWA)     | x         | -         | -        | -         | -        | km/h                       |
|    | True wind speed (TWS)     | x         | -         | -        | x         | -        | km/h                       |
|    | True wind direction (TWD) | x         | -         | -        | x         | -        | °                          |
|    | Speed through water (STW) | x         | -         | -        | -         | -        | mph / kn / km/h            |
|   | Trip distance             | -         | -         | -        | -         | -        | km, mi, nm                 |
|  | Trip time                 | -         | -         | -        | -         | -        | h                          |
|  | Trip fuel                 | -         | x         | -        | -         | -        | km, mi, nm                 |
|  | GPS speed                 | x         | -         | -        | -         | -        | mph / kn / km/h            |
| -   | Roll                      | x         | -         | -        | -         | -        | °                          |
| -   | Pitch                     | x         | -         | -        | -         | -        | °                          |
| -   | Position                  | x         | -         | -        | -         | -        | ° (latitude and longitude) |
| <b>SOC</b>  | Battery Charge            | x         | -         | -        | -         | -        | %                          |
| -   | Battery Current           | x         | -         | -        | -         | -        | A                          |
| -   | Battery Autonomy          | x         | -         | -        | -         | -        | h / d                      |
| <b>SOH</b>  | Battery Health            | x         | -         | -        | -         | -        | %                          |
| -   | Battery Temperature       | x         | -         | -        | -         | -        | °C / °F                    |

Note\*: internally calculated data

## ENGINE HOURS

In the absence of data received from the NMEA 2000 network, the indicator considers the internally counted value. The time is counted as engine hours when the engine speed is more than 300 RPM. In the presence of data from the NMEA 2000 network, the indicator considers the data received from the network only if higher than the internal data.

## DISTANCE TRAVELED

The indicator internally calculates the distance travelled based on the speed value set in Sensors > Speed.

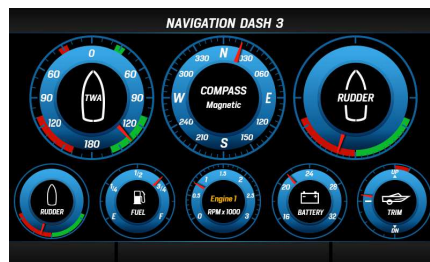
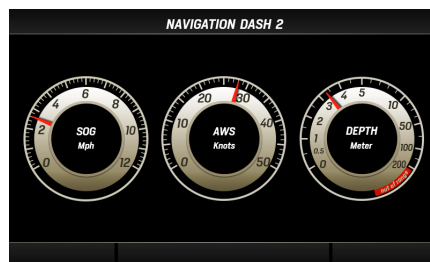
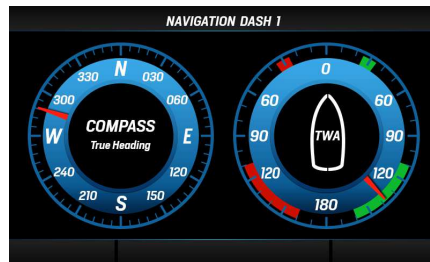
## NAV DASH SCREENS

The NavDash layout is available in three different configurations with respectively two, three, and eight round gauges displayed.

Every layout is displayed in blue or amber color palette, and in day or night mode depending on the current display setup.

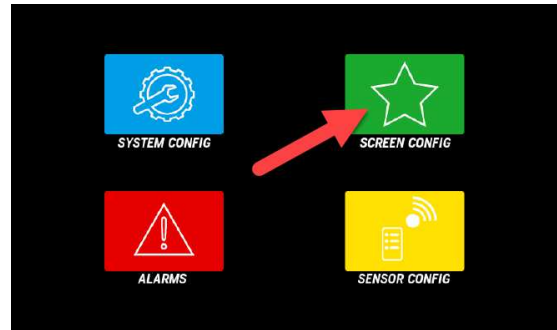
Each of these configurations can be customized with different gauges, selectable among the following:

- Engine revolutions
- Depth
- Rudder angle
- Apparent wind angle (AWA)
- Apparent wind speed (AWS)
- True heading
- Speed through water (STW)
- Speed over ground (SOG)
- Fuel level
- Fresh water level
- Waste water level
- Trim
- Battery voltage



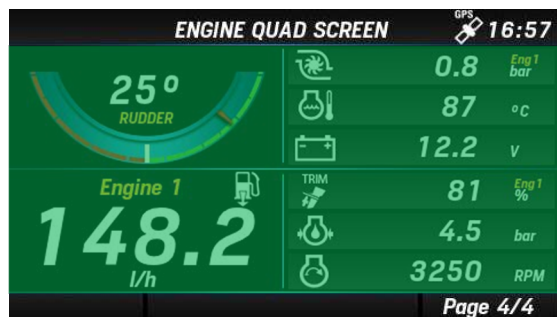
# SCREEN CONFIGURATION

1. Access the HOME screen by pressing the MENU button and select SCREEN CONFIG to enter the screens' configuration.



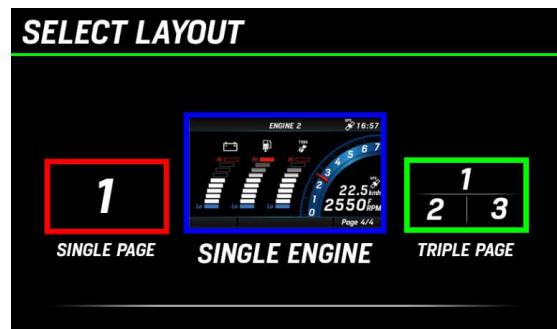
2. Scroll the favorite screens until the one to be customized (or deleted) is displayed and press ENTER to confirm.

To add a new screen at the end of the favorites, just scroll until an empty screen slot is selected.



3. Choose the screen layout for the new screen among the ones described in "Screens layouts".

To delete the selected screen, select REMOVE PAGE.

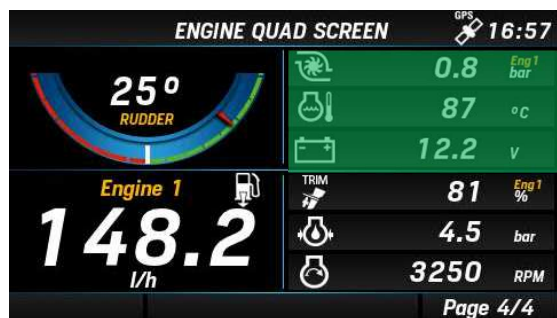


4. Depending on the chosen layout it is possible to customize some parts of the screen like data fields or bar graphs.

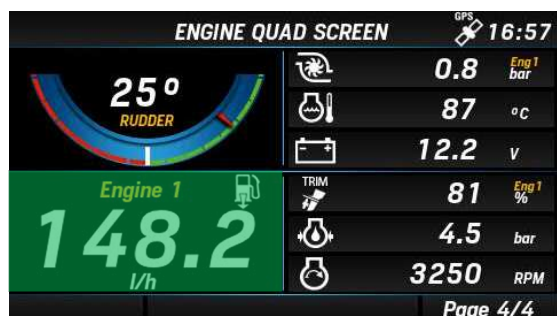
The currently selected item is highlighted in green color.

Scroll through the customizable items by pressing the UP and DOWN buttons.

Press ENTER to select the item to be customized.



Press ▲ or ▼ to select the next field





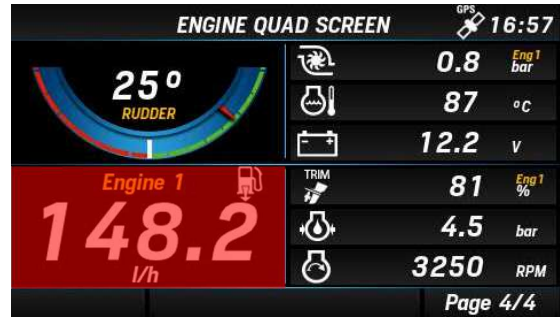
## SCREEN CONFIGURATION

- Once an item is selected it will be highlighted in red color.

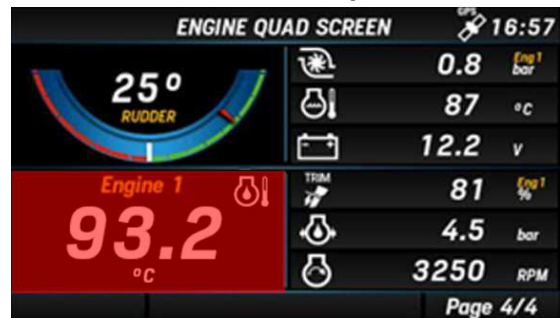
Press the UP/DOWN buttons to modify the data displayed on that item.

See "Supported Data" for the complete list of available data.

Once the displayed data is found, press ENTER to confirm the selection and the item is highlighted in green color again.



Press ▲ or ▼ to change the data



- To customize another screen, press BACK many times until you're back to the screen selection described at point 2.

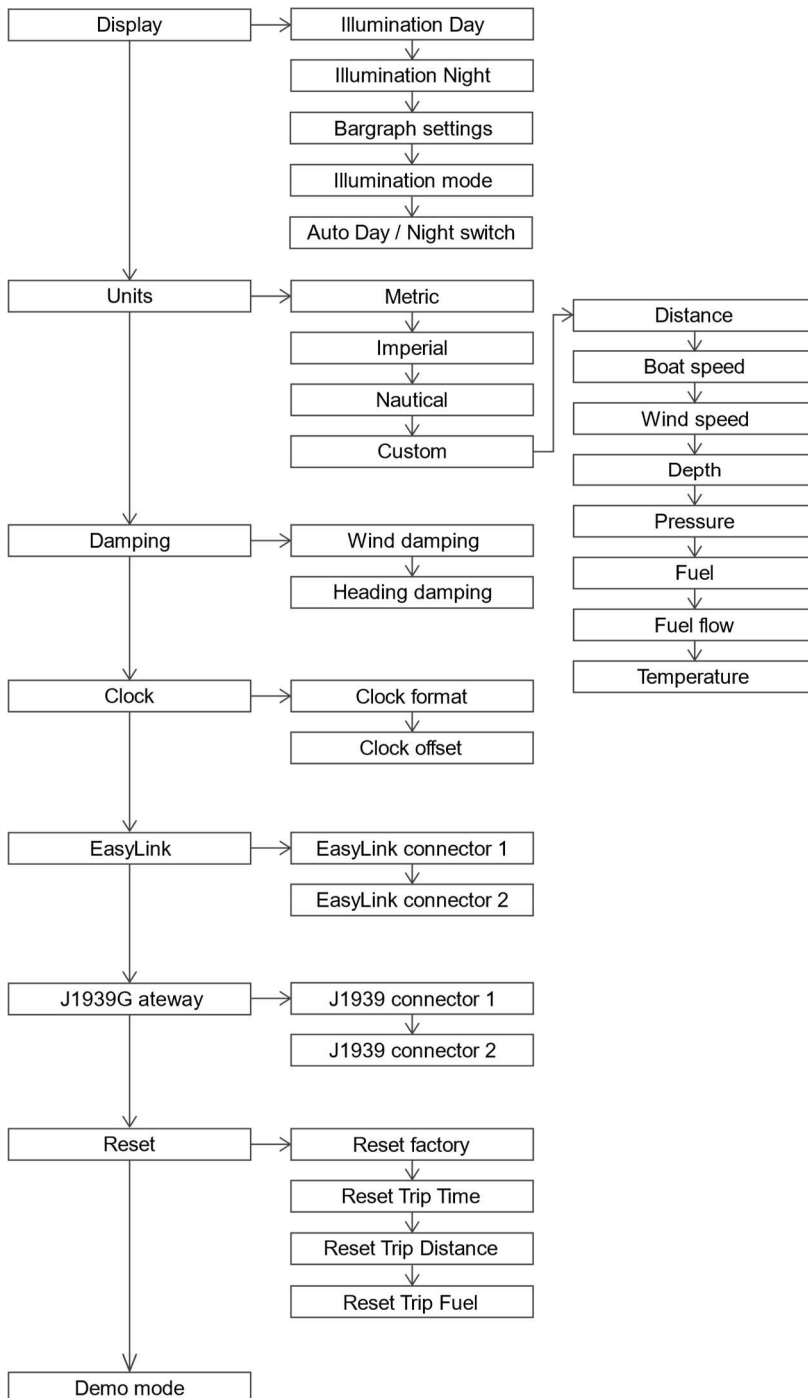
To quite the settings and return to normal operation, long press the BACK button.

# SYSTEM SETTINGS

To access the system settings, enter the HOME screen by pressing the MENU button and select SYSTEM CONFIG to enter the screens' configuration.



## SYSTEM CONFIG STRUCTURE



## OPERATING THE SYSTEM CONFIG MENU

NOTE: the underlined value/command is the factory default one.

| Setting                                       | Description   | Possible values / commands   |
|---|---|--|
| Display ><br>Illumination Day                 | Brightness of the display for the day mode.<br><br><i>NOTE: this setup affects all the EasyLink gauges too.</i>   | <u>0-7</u> , Auto  |
| Display ><br>Illumination Night               | Brightness of the display for the night mode.<br><br><i>NOTE: this setup affects all the EasyLink gauges too.</i>   | <u>0-7</u>   |
| Display ><br>Bargraph settings                | Bar graphs minimum and maximum setup.   | <ul style="list-style-type: none"> <li>• Boost press: 0-13 bar (default = 0-1)</li> <li>• Engine temp 0-300 °C (default = 0-200)</li> <li>• Battery voltage 8-32 V (default = 10-16)</li> <li>• Fuel flow 0-800 l/h (default = 0-150)</li> </ul>   |
| Display ><br>Illumination mode                | Color palette and brightness profile selection.   | <ul style="list-style-type: none"> <li>• <b>Blue day:</b> blue dials, white numbers, Illumination:7</li> <li>• <b>Blue night:</b> blue dials, red numbers, Illumination:2</li> <li>• <b>Amber day:</b> amber dials, white numbers, Illumination:7</li> <li>• <b>Amber night:</b> amber dials, red numbers, Illumination:2</li> </ul> |
| Display > Auto<br>Day/Night Switch            | Enable the built-in light sensor to automatically change between day and night mode and sets at which level of brightness the display should toggle.<br><br><i>NOTE: This is only possible if the Illumination input (term. 58) is disabled in the sensor configurations.</i> | <ul style="list-style-type: none"> <li>• <u>OFF</u></li> <li>• <u>Bright</u></li> <li>• <u>Medium</u></li> <li>• <u>Dark</u></li> </ul>  |
| Units   | Unit of measure for the displayed data.   | <ul style="list-style-type: none"> <li>• <u>Metric</u></li> <li>• Imperial</li> <li>• Nautical</li> <li>• Custom</li> </ul>  |
| Damping ><br>Wind damping/<br>Heading damping | Damping for wind and heading displayed data.  | <ul style="list-style-type: none"> <li>• No</li> <li>• <u>Low</u></li> <li>• Medium</li> <li>• High</li> </ul>   |
| Clock ><br>Clock format                       | Clock format.   | <ul style="list-style-type: none"> <li>• <u>12 h</u></li> <li>• 24 h</li> </ul>  |

## SYSTEM SETTINGS

| Setting   | Description  | Possible values / commands  |
|---|--|---|
| Clock ><br>Clock offset   | Time zone setup.   | From -12h to +12 h ( <u>0</u> h)  |
| EasyLink ><br>EasyLink connector<br>1 / EasyLink<br>connector 2 | Which engine and tanks are to be displayed on the EasyLink gauges.   | <ul style="list-style-type: none"> <li>• Show engine data from: Engine 1-4</li> <li>• Show fuel from: Tank 1-4</li> <li>• Show fresh water from: Tank 1-4</li> <li>• Show waste water from: Tank 1-4</li> </ul> |
| J1939 ><br>Connector1 /<br>Connector 2                          | <p>Configuration for the SAE J1939 to NMEA 2000 gateway.</p> <p>All the data received from the J1939 bus will be sent on NMEA 2000 with the instance specified here.</p> | <p>Send to NMEA 2000 As:</p> <ul style="list-style-type: none"> <li>• <u>Auto</u>: the display keeps the J1939 engine identifier also for the NMEA 2000 network.</li> <li>• Engine 1-4</li> </ul>               |
| Reset ><br>Reset factory  | Reset the display to factory default.  | <ul style="list-style-type: none"> <li>• Yes</li> <li>• <u>No</u></li> </ul>  |
| Reset ><br>Reset Trip time                                      |  | <ul style="list-style-type: none"> <li>• Yes</li> <li>• <u>No</u></li> </ul>  |
| Reset ><br>Reset Trip Distance                                  |  | <ul style="list-style-type: none"> <li>• Yes</li> <li>• <u>No</u></li> </ul>  |
| Reset ><br>Reset Trip Fuel                                      |  | <ul style="list-style-type: none"> <li>• Yes</li> <li>• <u>No</u></li> </ul>  |
| Reset ><br>Reset MediaBox                                       | Only available with a MediaBox device connected. The MediaBox settings are reset to factory default.   | <ul style="list-style-type: none"> <li>• Yes</li> <li>• <u>No</u></li> </ul>  |
| Demo mode   | <p>Demo mode activation. Simulated data are NOT sent on NMEA 2000.</p> <p><i>Note: the demo mode will remain active after the unit is restarted.</i></p>                 | <ul style="list-style-type: none"> <li>• <u>On</u>: display data are simulated. The simulation is sent on EasyLink satellites too.</li> <li>• <u>Off</u>: demo mode is off.</li> </ul>                          |

## UNITS

| Setting     | Metric | Imperial | Nautical | Custom             |
|-------------|--------|----------|----------|--------------------|
| Distance    | km     | mi       | nm       | km, mi, nm         |
| Boat speed  | km/h   | mph      | kn       | km/h, mph, kn      |
| Wind speed  | km/h   | kn       | kn       | km/h, kn, m/s, bft |
| Depth       | m      | ft       | ft       | m, ft              |
| Pressure    | bar    | psi      | psi      | bar, psi, kPa      |
| Fuel        | L      | gal      | gal      | L, gal             |
| Fuel flow   | L/h    | gph      | gph      | L/h, gph           |
| Temperature | °C     | °F       | °F       | °C, °F             |

## SET THE DAY/NIGHT MODE

To set the desired mode, act on pin 10 of the MX150 connector as follows:

| To set the mode... | Then...                                      |
|--------------------|--|
| day                | move the pin switch to <b>GND/OPEN</b> .     |
| night              | move the pin switch to <b>BATTERY PLUS</b> . |

## CHANGE THE BRIGHTNESS OF THE DISPLAY

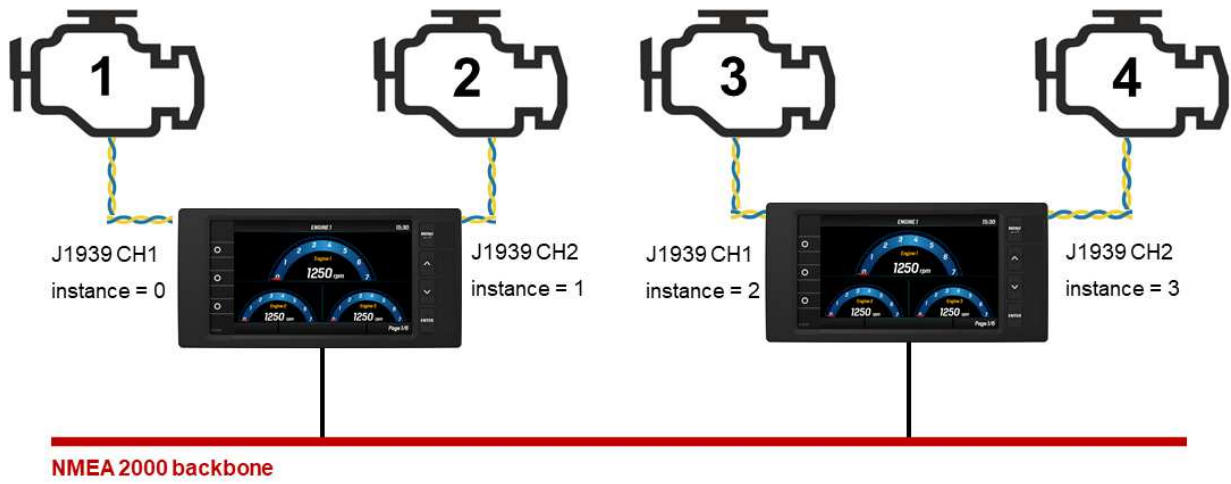
There's a shortcut to change the brightness of the display. The change affects the set day or night mode.

- Press and hold the buttons UP and DOWN until the menu illumination appears.
- Change the illumination brightness with the buttons UP and DOWN.
- Confirm and close the menu with ENTER
- To exit the menu without saving the changes press the MENU

### SAE J1939 GATEWAY

The OceanLink display is equipped with two independent SAE J1939 ports to connect your CAN engines to the display and read the digital data coming from them.

Make sure to properly setup the J1939 gateway so that all the engine data are transmitted on NMEA 2000 with the correct instance.

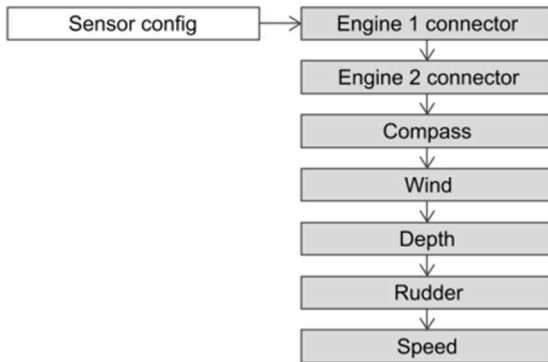


# SENSORS' CONFIGURATIONS

To access the sensors' settings, enter the HOME screen by pressing the MENU button and select SENSOR CONFIG to access it.

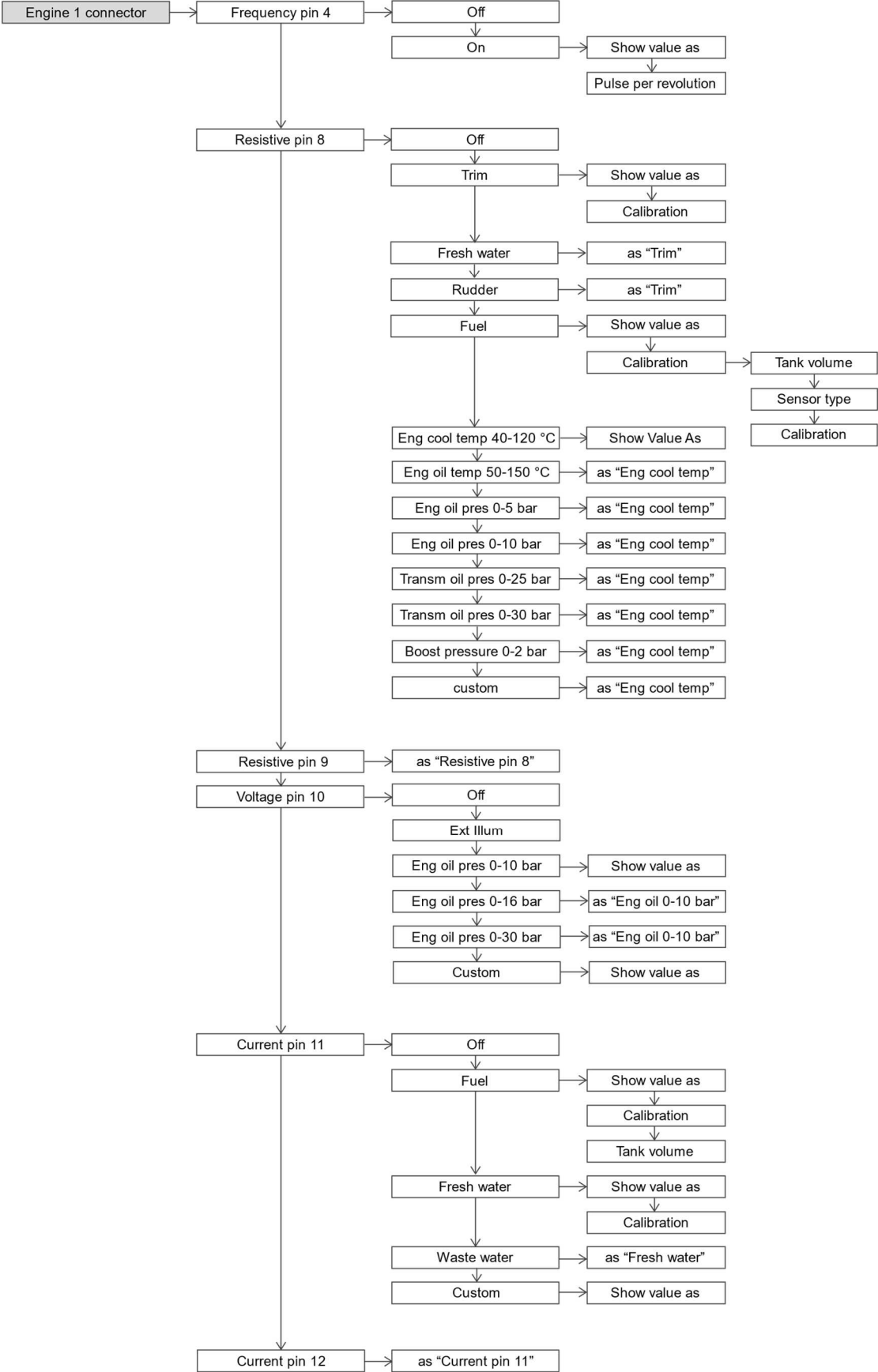


## SYSTEM CONFIG STRUCTURE



| Setting                         | Description   | Possible values                   |
|---------------------------------|---|-----------------------------------|
| Engine 1 connector              | Configure the sensors connected to the display through the analogue inputs of the Engine 1 connector (see "Connections"). | -                                 |
| Engine 2 connector              | Configure the sensors connected to the display through the analogue inputs of the Engine 2 connector (see "Connections"). | -                                 |
| Compass > Heading offset        | Angular offset between True North and the bow of the boat.  | $\pm 0 - 180^\circ (0^\circ)$     |
| Compass > Variation             | Magnetic variation offset (polar difference between Magnetic North and True North)  | $\pm 0 - 180^\circ (0^\circ)$     |
| Compass > Send True Heading     | Activate to let the display transmit the calculated True Heading over NMEA 2000.  | Yes / No (No)                     |
| Wind > Wind direction offset    | Angular offset between the wind sensor $0^\circ$ position and the longitudinal boat axis.                                 | $\pm 0 - 180^\circ (0^\circ)$     |
| Wind > Send True Wind           | Activate to let the display transmit the internally calculated True Wind data (TWA and TWS) over NMEA 2000.               | Yes / No (No)                     |
| Depth                           | Depth offset setup. Positive for depth below waterline, negative for depth below keel.                                    | $\pm 0 - 9.9\text{m} (2\text{m})$ |
| Rudder                          | Rudder offset setup.  | $\pm 0 - 120^\circ (0^\circ)$     |
| Speed > Speed correction factor | Correction for the boat speed data received via NMEA 2000. See "Calculate the speed offset".                              | $0 - 199.99 (1.00)$               |

CONFIGURE A SENSOR CONNECTED TO THE DISPLAY





### 1. INPUT SELECTION

Once in the SENSOR CONFIG menu, select “Engine 1 connector” or “Engine 2 connector” depending on which connector the sensor is electrically connected to.

Then select the analogue input (on that connector) where the sensor output is wired.

### 2. CHOOSE THE SENSOR TYPE

Select what kind of sensor is connected to that input.

See the menu diagram for the complete list of supported sensors.

Select “Custom” for importing the complete input configuration from the PC Veratron Configuration Tool.

### 3. CONFIGURE THE NMEA 2000 OUTPUT

The measured value for the configured analog sensor is also transmitted over NMEA 2000, so the OceanLink display will act as a source for that data.

Use the menu item “Show Value As” to modify the NMEA 2000 instance for that sensor.

If a configuration conflict is detected in the setup (like when two sensors with same instance are configured on different analog ports), the display will show a warning.

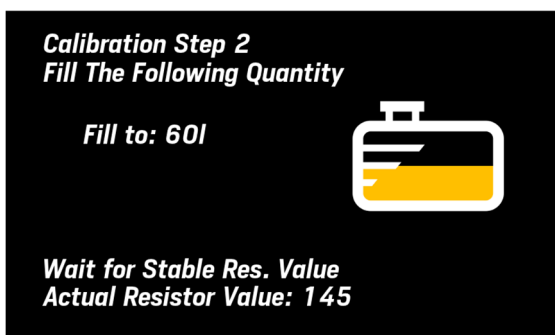
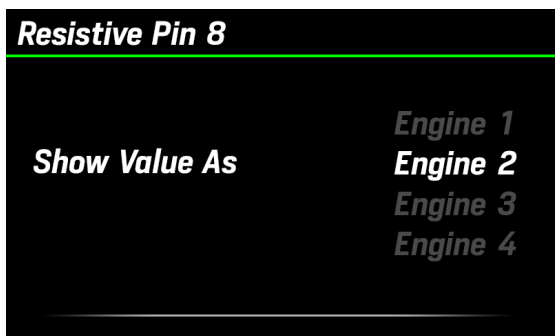
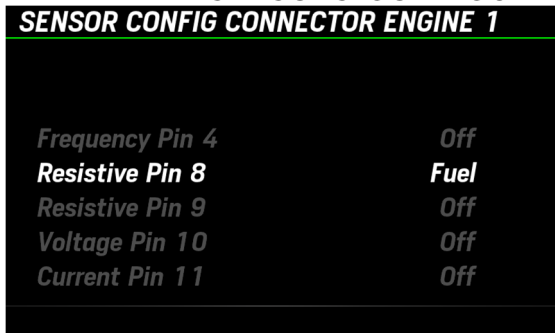
### 4. CALIBRATE THE SENSOR

Every sensor type has a standard calibration (see “Default supported calibrations”). Veratron sensors are by default supported.

It is however possible, for some sensors, to calibrate the sensor through a calibration wizard (see next chapters).

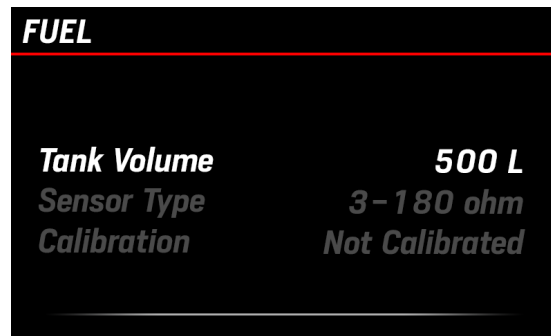
Every sensor type can be always calibrated via the PC-based veratron Configuration Tool (see “Sensor calibration with Veratron Configuration Tool”).

## SENSORS' CONFIGURATION



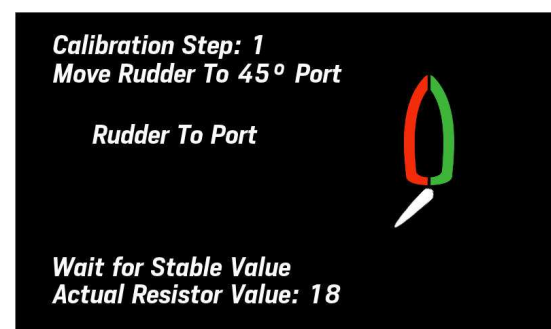
## FUEL LEVEL SENSOR CALIBRATION

1. In the input configuration menu described before, select "Calibration" to open the sensor's calibration options.
2. Select **Tank volume** to set the tank's capacity (not mandatory).
3. Select **Sensor type**, then select the sensor type among the proposed standard ones.
4. Select **Calibration**, then select the one or three-point calibration procedure (**Do 1 point cal/Do 3-point cal**). Calibration instructions and the ohmic value read in real-time from the sensor [A] appear.
5. Empty the tank and wait for the read value to stabilize. Then confirm by pressing ENTER.
6. For three-point calibration, follow the on-screen instructions.
7. Hold down the MENU button to return to the data pages.



## OTHER SENSORS' CALIBRATION

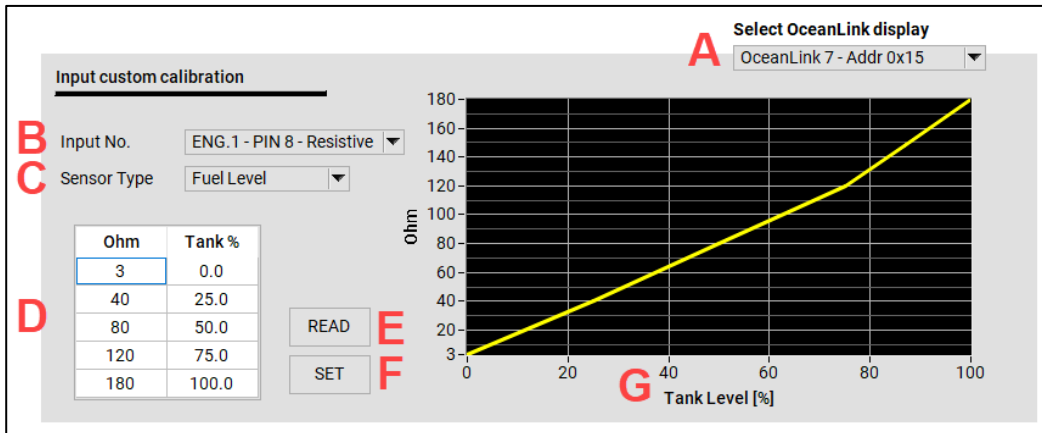
1. In the input configuration menu described before, select **Calibration** to open the sensor's calibration options.
2. Then select the three-point calibration procedure by accessing **Do 3-point cal**. Calibration instructions and the ohmic value read in real-time from the sensor appear.
3. For fresh and waste water sensors the tanks must be drained, then wait for the read value to stabilize. Confirm the reading by pressing ENTER.
4. Proceed with all calibration points following the wizard.
5. Hold down the MENU button to return to the data pages.



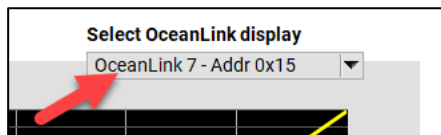
**CUSTOM SENSORS CONFIGURATION**

In the bottom part of the Sensor Configuration panel, it is possible to fully customize the configuration of every analog port of your OceanLink display.

*NOTE: this operation still requires you to perform some setting on the display itself (set the input to "Custom" and select the data instance).*



- 1** **Select the display** to be programmed from the drop-down list [A].  
If more OceanLink displays are on the network, they will all be visible in this list.



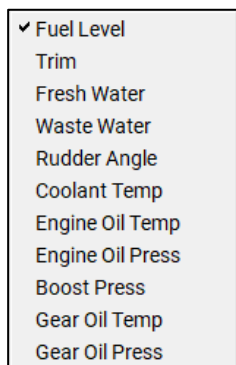
- 2** **IN THE DISPLAY MENU set the pin configuration to "CUSTOM"**.  
*Sensor Config → Choose the port to be configured → Input → Custom*

This setup is required on the display to allow the local pin configuration to be overwritten.

When CUSTOM is selected, the configuration must come from the Tool.

- 3** Back on the PC Tool, **select the input to configure [B]**.  
This selection must match the pin configured as CUSTOM on the display in the step before.

- 4** **Select the Sensor type** from the drop-down list [C].



- 5 Manually set the 5-points calibration** into the table [D] for the selected sensor.  
The graph [G] will display the calibration being set.

| Ohm | Tank % |
|-----|--------|
| 3   | 0.0    |
| 45  | 25.0   |
| 90  | 50.0   |
| 135 | 75.0   |
| 180 | 100.0  |

*The example above is for a standard 3-180Ω fuel level sensor.*

- 6 Upload the configuration** to the display.  
Press the SET button [F] to write the configuration for the specific pin.  
A popup will appear as a safety confirmation.
- Press the READ button [E] to read back from the display the configuration for the pin defined in [A].

**DEFAULT CALIBRATIONS**

| Sensor Type      | Calibration                |
|------------------|----------------------------|
| Fuel             | 240-33 Ω                   |
|                  | 3-180 Ω                    |
|                  | 2-90 Ω                     |
| Fresh Water      | 3-180 Ω (resistive inputs) |
|                  | 4-20mA (capacitive inputs) |
| Waste Water      | 3-180 Ω (resistive inputs) |
|                  | 4-20mA (capacitive inputs) |
| Trim             | 10-167 Ω                   |
| Rudder           | 10-180 Ω                   |
| Eng Coolant Temp | 291-22 Ω                   |
| Eng Oil Temp     | 197-11 Ω                   |
| Eng Oil Pressure | 10-184 Ω                   |
| Boost Press      | 10-184 Ω                   |

**ADJUSTING THE SPEED CORRECTION FACTOR**

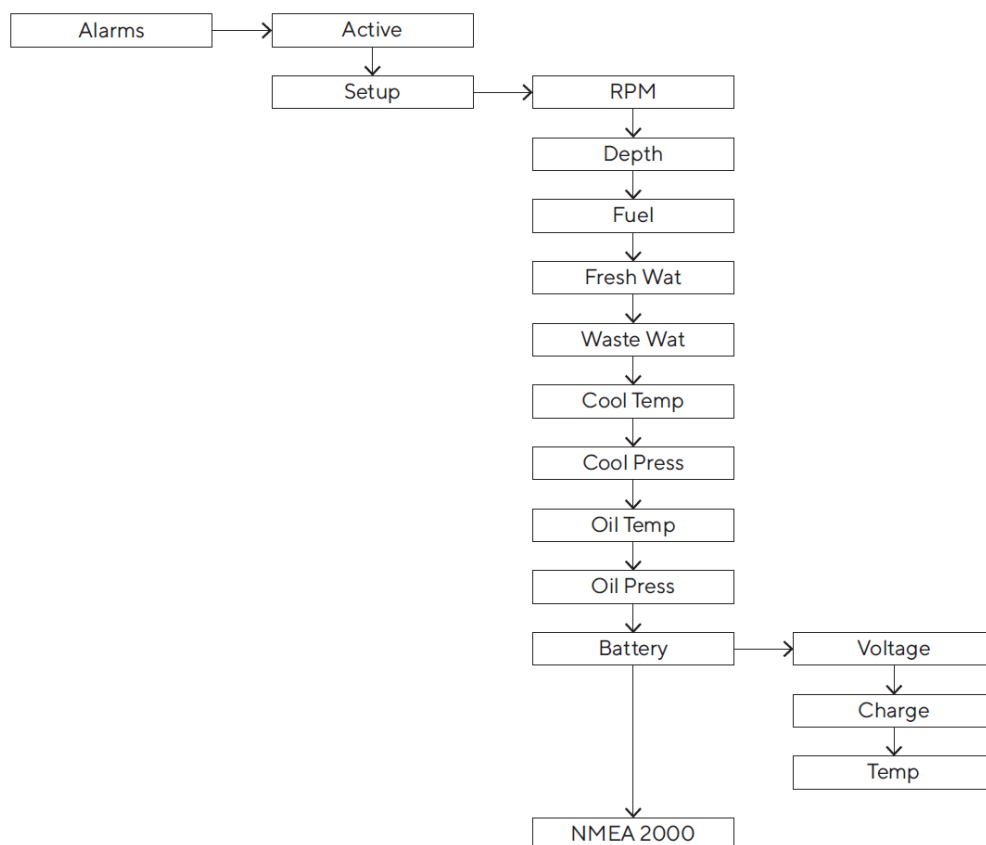
The speed offset factor lets you align the speed through water (STW) to the actual speed. If the measured speed differs from the real boat speed for more than 0.5 kn, this factor can be adjusted. Increasing the offset factor reduces the displayed speed through water (STW).

# ALARMS

The OceanLink display can show active alarms coming from either NMEA 2000, SAE J1939, or from the analogue sensors directly connected to it. Engine alarms concern all engines on the network.



## ALARMS MENU STRUCTURE



## ALARMS NOTIFICATION

In the event of an alarm, the following appears on the display:

- The alarm popup appears
- The buzzer gets activated, if connected and set
- The active alarm, including additional information, is visible in the Active alarms screen
- If supported, the local alarm is transmitted to the NMEA 2000 network



## ACKNOWLEDGE AN ALARM

When an alarm is triggered, the Alarm notification popup appears and the buzzer sounds (if connected and configured).

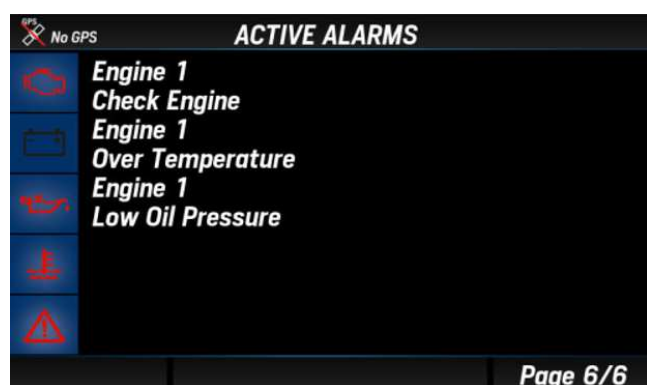
To acknowledge the alarm and mute the buzzer, press any button on the keyboard: the popup notification is closed, and the alarm is saved in the Active alarms screen.






The alarm remains displayed in the Active alarms screen as long as it remains active, and a warning icon is displayed in the bottom side of every screen to remind you that an alarm is currently active.

## ACTIVE ALARMS

If at least one alarm is active, an "Active alarm" screen will appear after the last screen. The same screen can be accessed via ALARMS > Active alarms.

All the currently active alarms are listed here, together with some warning symbols.



| Symbol  | Description       |
|---|-------------------|
|  | Engine alarms     |
|  | Battery alarms    |
|  | Oil alarms        |
|  | Engine temp alarm |
|  | Generic alarm     |

**CONFIGURE A LOCAL ALARM**

1. Press the MENU button and select ALARMS > Setup
2. Select one of the supported alarms
3. Activate it by selecting Active > Yes, the alarm parameters will appear
4. Then select and edit the threshold(s) and enable/disable the buzzer

| <b>Setting</b>      | <b>Description</b>   | <b>Possible values</b>      | <b>NMEA 2000 output</b> |
|---------------------|--|-----------------------------|-------------------------|
| Depth shallow       | Shallow water alarm.   | 0 – 9.9 m (2m)              | No                      |
| Depth navigation    | Depth navigation alarms.<br>Deep water alarm (e.g., a value near the maximum value measurable by the sensor) and safety depth minimum threshold. | 0 – 99.9 m<br>(50m, 5m)     | No                      |
| Wind                | High wind speed.   | 0 – 99.9 km/h<br>(39.9km/h) | No                      |
| Battery voltage     | Low battery voltage.   | 0 – 32.9 V (10.8V)          | Yes                     |
| Battery Temperature | High battery temperature.  | 0 – 99 °C (50°C)            | No                      |
| Battery Charge      | Low battery state of charge.   | 0 – 99 % (50%)              | No                      |
| Engine water temp   | High engine coolant temperature.   | 0 – 139 °C (110°C)          | Yes                     |
| Engine oil temp     | High engine oil temperature.   | 0 – 149 °C (120°C)          | Yes                     |
| Engine oil pressure | Low engine oil pressure.   | 0 – 9.9 bar (0.5bar)        | Yes                     |
| Exhaust Gas Temp    | High EGT.  | 0 – 899 °C<br>(500°C)       | Yes                     |
| Fuel                | Low fuel level.  | 0 – 99 % (20%)              | No                      |
| Fresh water         | Low fresh water level.   | 0 – 99 % (20%)              | No                      |
| Waste water         | High waste water level.  | 0 – 99 % (80%)              | No                      |
| Local alarm input   | External digital switch (low active alarm).<br>Refer to “Connections’ diagram”.  |                             | No                      |
| Min RPM             | RPM minimum threshold to trigger engine-related alarms.  | 0 – 990 RPM<br>(300RPM)     | -                       |

## CONFIGURE A CAN ALARM FROM NMEA 2000 OR SAE J1939

1. Press the MENU button and select ALARMS > Setup
2. Select CAN and then the NMEA 2000 or SAE J1939 input
3. Choose the alarm to activate and select Active > Yes, the alarm parameters will appear
4. If necessary, enable/disable the buzzer

| <b>NMEA 2000 alarms</b><br>Engine (PGN 127489)  | <b>NMEA 2000 alarms</b><br>Transmission (PGN 127493)   | <b>SAE J1939 alarms</b><br>(DM1)  |
|---|--|---|
| Check engine<br>Over temperature<br>Low oil pressure<br>Low oil level<br>Low fuel pressure<br>Low system voltage<br>Low coolant level<br>Water flow<br>Water in fuel<br>Charge indicator<br>Preheat indicator<br>High boost pressure<br>Rev limit exceeded<br>EGR system<br>Throttle position sensor<br>Engine emergency stop<br>Warning level 1<br>Warning level 2<br>Power reduction<br>Maintenance needed<br>Eng com error<br>Sub or secondary throttle<br>Neutral start protect<br>Engine shutting down | Transm. Check transmission<br>Transm. Over temp<br>Transm. Low oil pressure<br>Transm. Low oil level<br>Transm. Sail drive | Engine speed<br>Boost pressure<br>Exhaust gas temperature<br>Engine oil pressure<br>Engine coolant pressure<br>Engine coolant temp<br>Engine oil temp<br>Transmission oil press<br>Transmission oil temp<br>Fuel Level<br>Water in fuel |



# TROUBLESHOOTING

| Problem  | Root cause  | Solution   |
|--|---|--|
| The values displayed are not as expected.  | Incorrect sensor configuration.   | Check the configuration in the Sensors menu.   |
|  | Sensor connected incorrectly.   | Check the connection, refer to the Installation Instructions.  |
|  | The NMEA 2000 network backbone has not been created correctly.                                | Check the connections and that there is a termination at both the beginning and end of the backbone. |
| “---” is displayed for a certain data or the pointer blinks in the NavDash layout. | The data is not available on the network.   | Check that the sensor is functioning correctly.  |
|  | Sensor not connected.   | Connect the sensor, refer to the Installation Instructions.  |
|  | The NMEA 2000 network backbone has not been created correctly.                                | Check the connections and that there is a termination at both the beginning and end of the backbone. |
| The same data is displayed with two different alternating values.                  | Incorrect sensor configuration. Two different sources are sending the same data on NMEA 2000. | Check the engine/tank IDs (Show value as) in the sensor configuration.                               |
| “No MediaBox connected”  | MediaBox is not connected to the NMEA 2000 network or to the power supply.                    | Check the connection of the MediaBox unit.   |
| “MediaBox not powered”   | MediaBox is connected but off.  | Turn on the MediaBox, see “MediaBox use”.  |

# TECHNICAL DATA

## GENERAL FEATURES

|  |  |
|--|--|
| <b>Material</b>  | Aluminum case<br>PBT and mineral glass front screen  |
| <b>Display</b>   | IPS TFT 7" - 800x480 - Transmissive touch screen<br>Full 24 bit / 16 mio. colors   |
| <b>Connectors</b>  | <ul style="list-style-type: none"> <li>• 2x Molex MX150 12 pin</li> <li>• 1x NMEA 2000 Micro-C M12 5 pin</li> <li>• 2x AMP SuperSeal 1.5 Series (EasyLink)</li> <li>• 1x M12 4 pins "D" coding (Video)</li> </ul>  |
| <b>Input data</b>  | <ul style="list-style-type: none"> <li>• CAN (NMEA 2000 and SAE J1939)</li> <li>• 6x resistive inputs (0-400 <math>\Omega</math>)</li> <li>• 2x capacitive inputs (4-20mA)</li> <li>• 2x frequency inputs (0-4 kHz)</li> <li>• 3x voltage inputs (0-5V)</li> <li>• 1x digital alarm input</li> </ul> |
| <b>Output data</b>                                       | <ul style="list-style-type: none"> <li>• NMEA 2000</li> <li>• 2x EasyLink</li> <li>• 2x Alarm outputs (500mA max)</li> </ul>   |
| <b>Degree of protection<br/>(according to IEC 60529)</b> | IPX7   |

## ENVIRONMENTAL FEATURES

|                              |                    |
|------------------------------|--------------------|
| <b>Operating temperature</b> | From -25 to +70 °C |
| <b>Storage temperature</b>   | From -40 to +85 °C |

## ELECTRICAL FEATURES

|                            |   |
|----------------------------|---|
| <b>Rated voltage</b>       | 12/24 V   |
| <b>Operating voltage</b>   | 9-32 V  |
| <b>Current consumption</b> | < 900 mA @ 12 V (display only)<br>100mA for each EasyLink satellite gauge |
| <b>Absorption (LEN)</b>    | 2   |

**COMPLIANCE**

|                            |  |
|----------------------------|--|
| <b>Compliance</b>          | CE, UKCA, Reach, RoHS, UL94  |
| <b>Directives</b>          | 2014/30/EU (Electromagnetic compatibility)<br>2011/65/EU (Hazardous substances in electrical and electronic equipment) |
| <b>Reference standards</b> | IEC 60945: 2002-08 (environmental class: exposed)  |

**DISPOSAL RESPONSIBILITY**

Dispose of by separate collection through government or local government designated collection facilities.

Proper disposal and recycling will help prevent potentially negative consequences for the environment and people.

# SPARE PARTS AND ACCESSORIES

## SPARE PARTS

| Product                         | Part Number   |
|---------------------------------|---------------|
| Power and data cable – Engine 1 | A2C1507870001 |
| Data cable – Engine 2           | A2C1992110001 |
| EasyLink extension cable        | A2C59500139   |
| Video input cable 0.3m          | A2C1845710001 |
| Plastic frame – black           | A2C1697530001 |
| Plastic frame – white           | A2C1697540001 |
| Sun cover                       | A2C59501973   |

## ACCESSORIES

| Product                       | Part Number   |
|-------------------------------|---------------|
| NMEA 2000 Power Cable         | A2C3931290001 |
| NMEA 2000 T-splitter          | A2C3931270002 |
| NMEA 2000 drop cable – 0.5m   | A2C9624370001 |
| NMEA 2000 drop cable – 2m     | A2C9624380001 |
| NMEA 2000 drop cable – 6m     | A2C9624400001 |
| NMEA 2000 terminator – Male   | A2C3931100001 |
| NMEA 2000 terminator – Female | A2C3931060001 |

For all available accessories, visit [www.veratron.com](http://www.veratron.com).



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