OL43 MULTIFUCTIONAL DISPLAY

USER MANUAL
rev. AA

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DISCLAIMER

To support ongoing product innovation and quality improvements, **Veratron AG** reserves the right to modify product features, specifications, or documentation without prior notice. As a result, certain details in this manual may not fully represent the most current version of the product.

For the latest updates or technical assistance, please contact your authorized Veratron representative or distributor.

It is the sole responsibility of the product owner and operator to install and use this equipment in a manner that ensures safety, complies with applicable marine regulations, and prevents personal injury or property damage. Improper installation or usage may result in system failure, vessel malfunction, or legal non-compliance. All users must adhere to best practices in safe boating and equipment handling.

Veratron AG disclaims all liability for damages, injuries, or regulatory violations arising from the misuse of this product or deviation from the procedures outlined in this manual.

Language Notice: This manual and associated documentation may be translated into multiple languages. In the event of discrepancies between translated versions, the English version shall prevail as the official and legally binding reference.

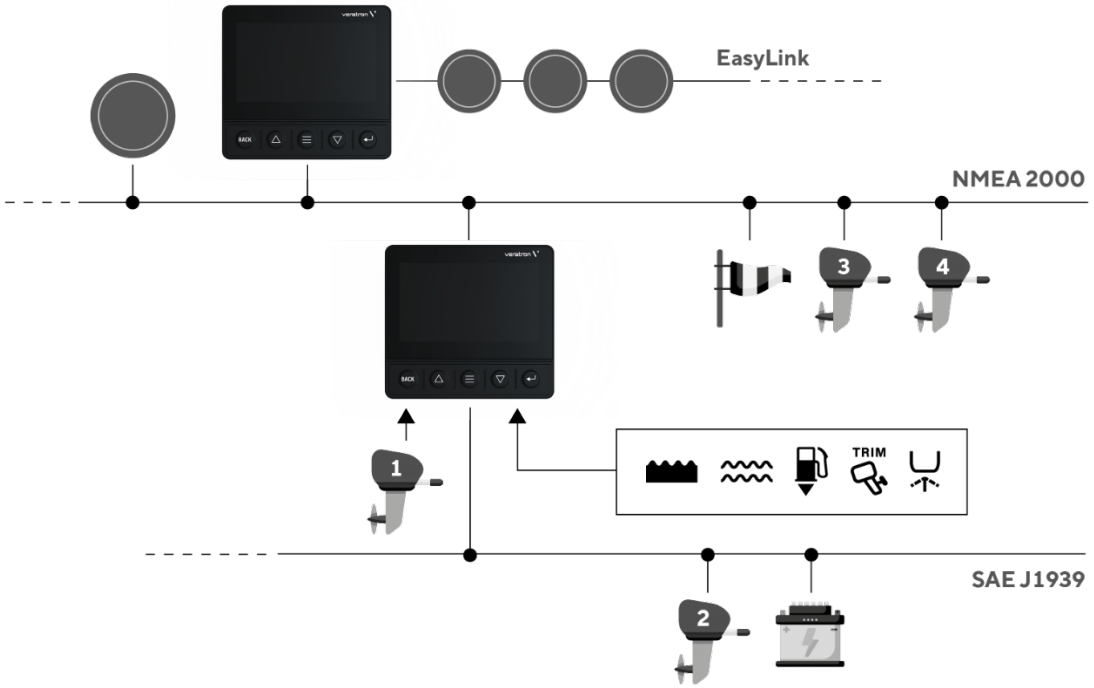
This document reflects the product configuration at the time of printing. **Veratron AG** reserves the right to revise or update the contents of this manual without obligation or notice.

INTRODUCTION

The OL43 Multifunction Display redefines clarity and control in marine environments. Featuring a 4.3" optically bonded IPS TFT screen with anti-glare mineral glass, it delivers brilliant visibility even in harsh conditions.
Designed for seamless integration, it supports NMEA 2000® and SAE J1939 protocols, analog sensors, and Ethernet connectivity. With lightning-fast startup, customizable multilingual GUI, and robust IPX7-rated housing, the OL43 is built to perform. Whether monitoring engines, tanks, batteries, or navigation data, this display offers intuitive interfaces, graphical insights, and real-time alarms. Its compact 85mm round form factor and flame-retardant housing make installation simple and safe.

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 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 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 damage 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.
- 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 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 damage 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.

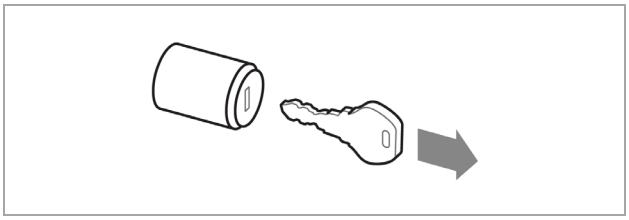
INSTALLATION

⚠ WARNING

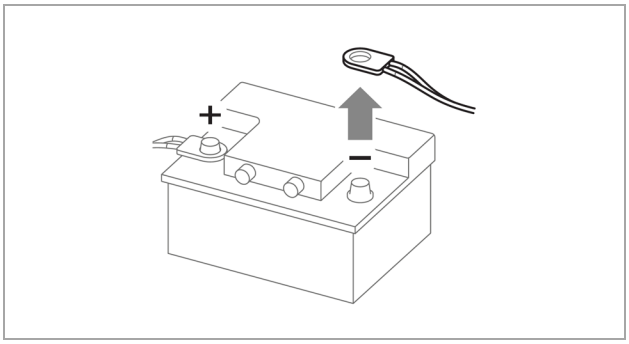
Before starting work, disconnect the negative terminal of the battery to avoid the risk of a short circuit. If the vehicle is equipped with additional batteries, the negative terminal of all batteries must also be disconnected if necessary. Short circuits can burn cables, explode batteries and cause 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

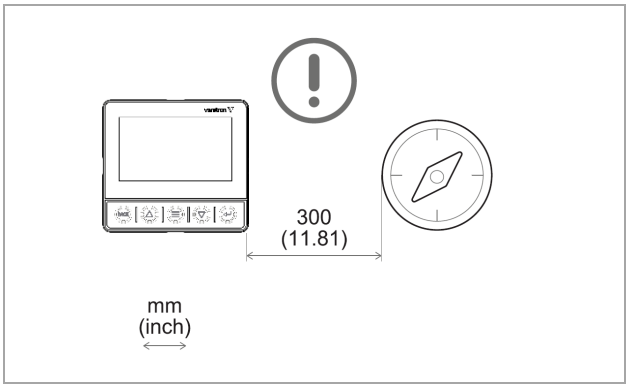
1. Before starting work, switch off the ignition and remove the ignition key. If necessary, remove the main power switch.



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).

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. Drill a hole in the panel using the drilling template (see next page of this document) and considering the device outer dimensions.

2. Insert the device from the front and tighten the spinlock nut.

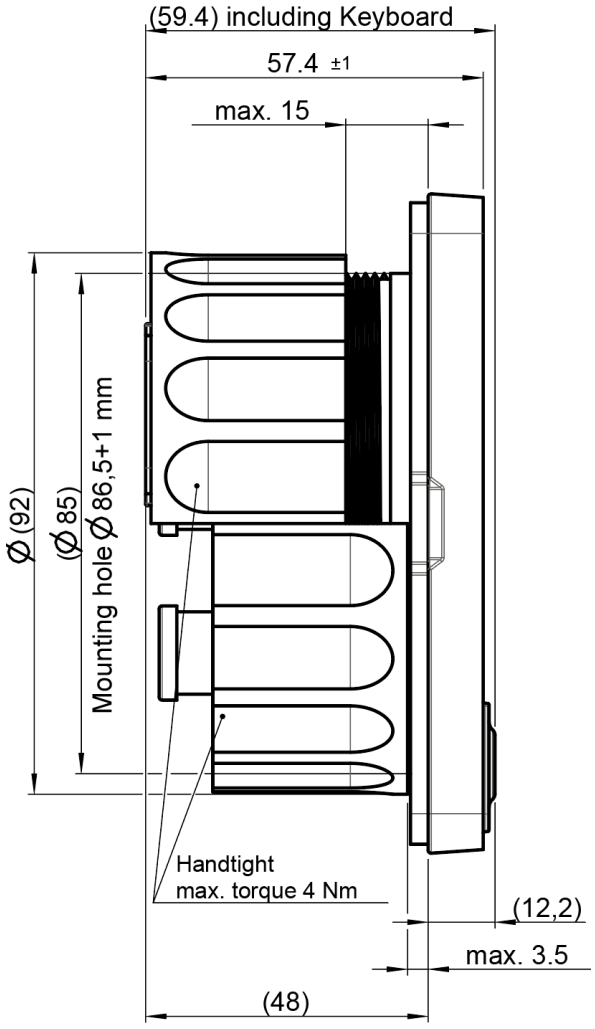
   NOTE: depending on the panel's thickness the spinlock must be installed in different direction.

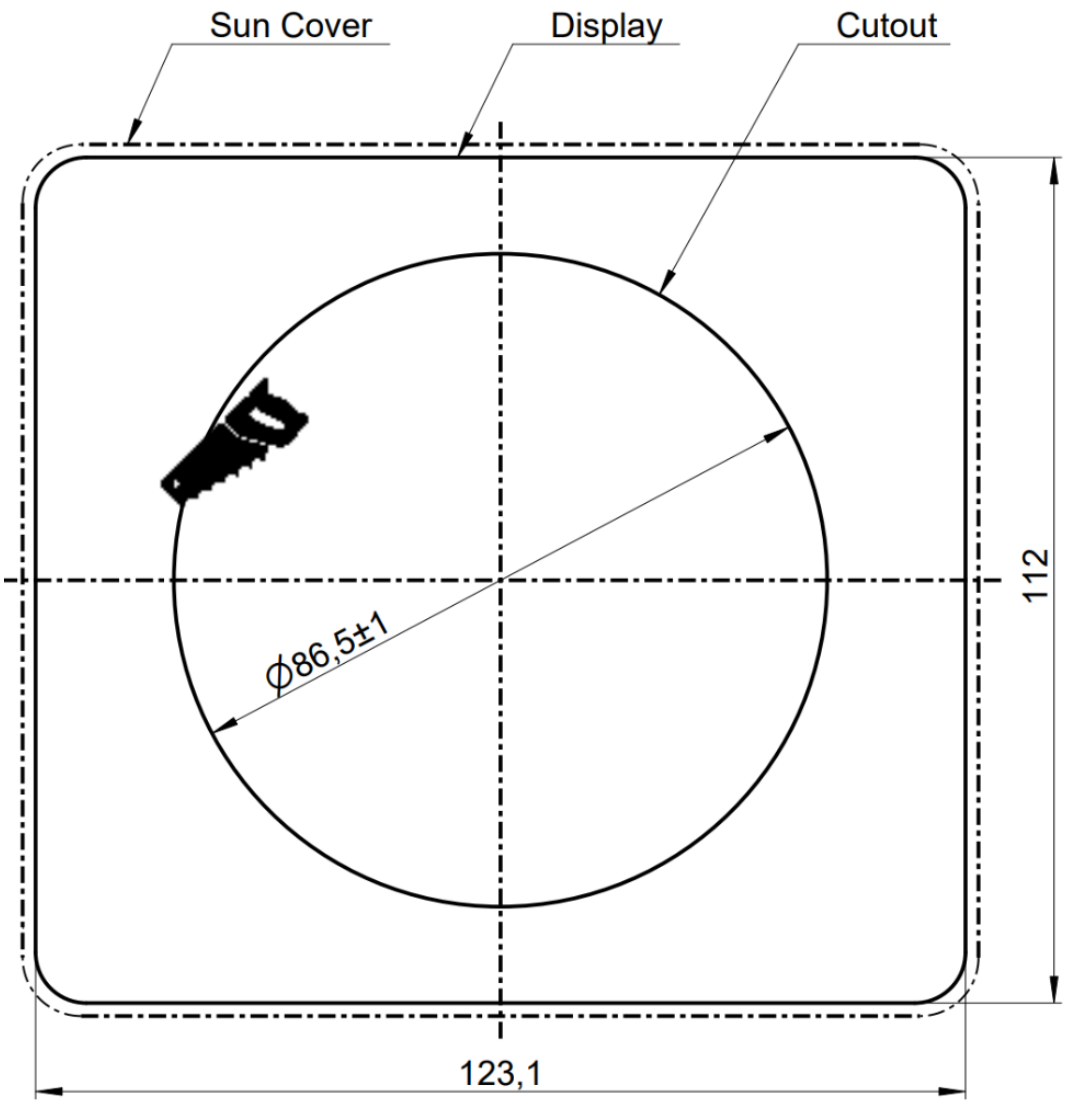
3. Fasten the required connectors.

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

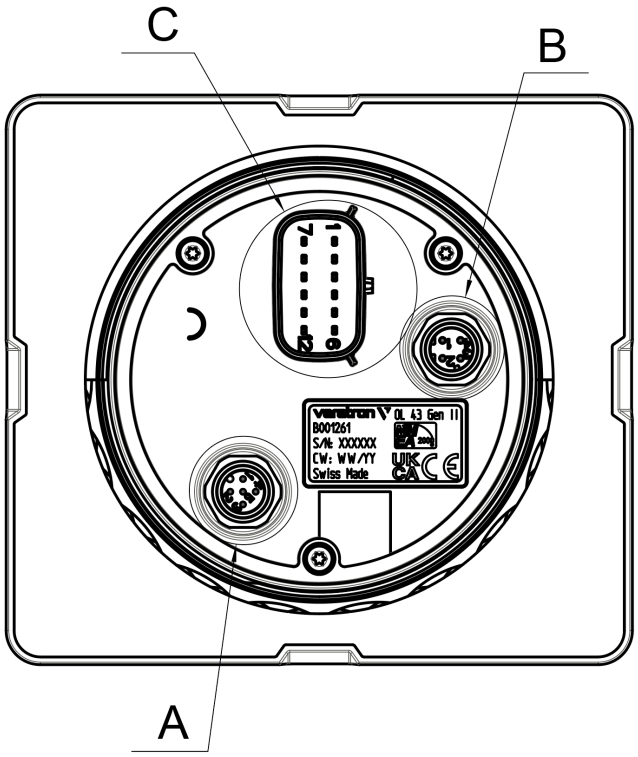
4. Remove the protection film from the display and make sure it is clean and dry.

5. Install the sun cover.



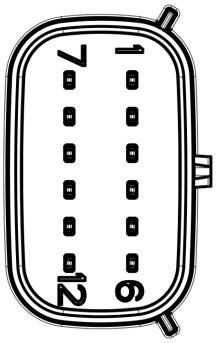

Sun Cover
Display
Cutout
ϕ86,5±1
112
123,1

ELECTRICAL CONNECTIONS



MAIN CONNECTOR [C]

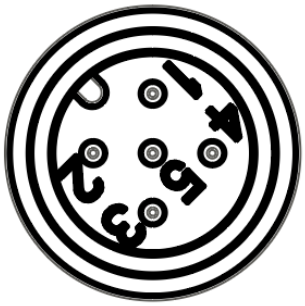
Pin No.	Wire color	Description
1	Red	Ignition Plus (+12/24V)
2	Black	GND
3	White	Buzzer Out
4	Green	Frequency input (RPM)
5	Blue	CAN_L (SAE J1939)
6	Blue / White	CAN_H (SAE J1939)
7	Yellow	0-5 V input
8	Grey	Resistive Input 1
9	Brown	Resistive Input 2
10	Orange	Illumination
11	Light Blue	EasyLink Power
12	Violet	EasyLink Data



Molex MX150 12-poles Code A connector, display pin view

NMEA 2000® CONNECTOR [C]

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



M12 5-poles Code A
connector, display pin view

ETHERNET CONNECTOR [B]

Pin No.	Description
1	Tx +
2	Rx +
3	Tx -
4	Rx -

M12 4-poles Code D
connector, display pin view

EASYLINK SATELLITES CONNECTION

The OL43 display can be used as a master gauge to drive up to 16 VMH14 satellite gauges.
The satellites are all connected in a single row (daisy chain).
The EasyLink interface allows a total length of maximum 20 meters.

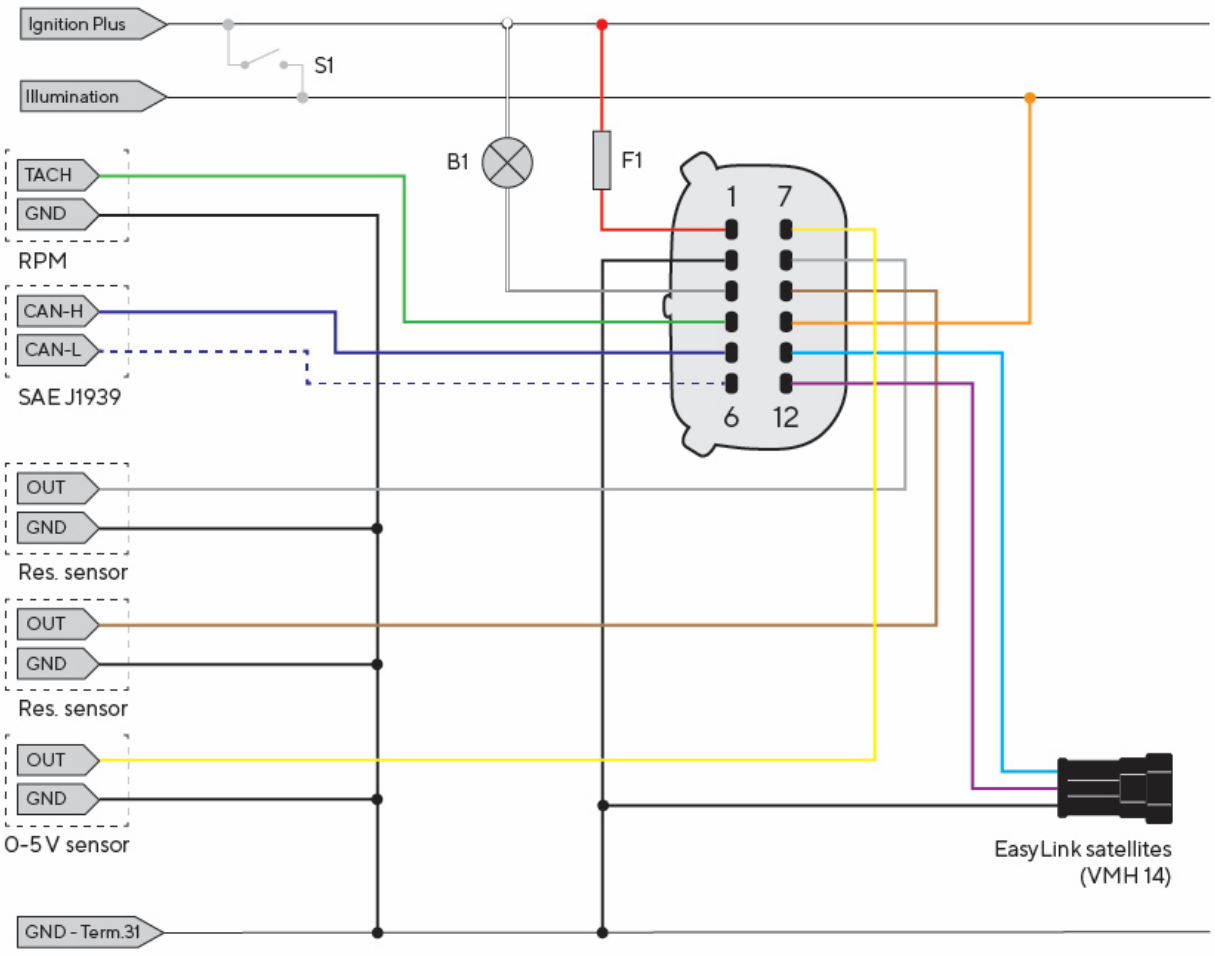
Pin No.	Description
1	12 V Power (from display)
2	GND
4	EasyLink Data

AMP SuperSeal 1.5 3 poles plug
cable view

ELECTRICAL DIAGRAMS

⚠WARNING

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

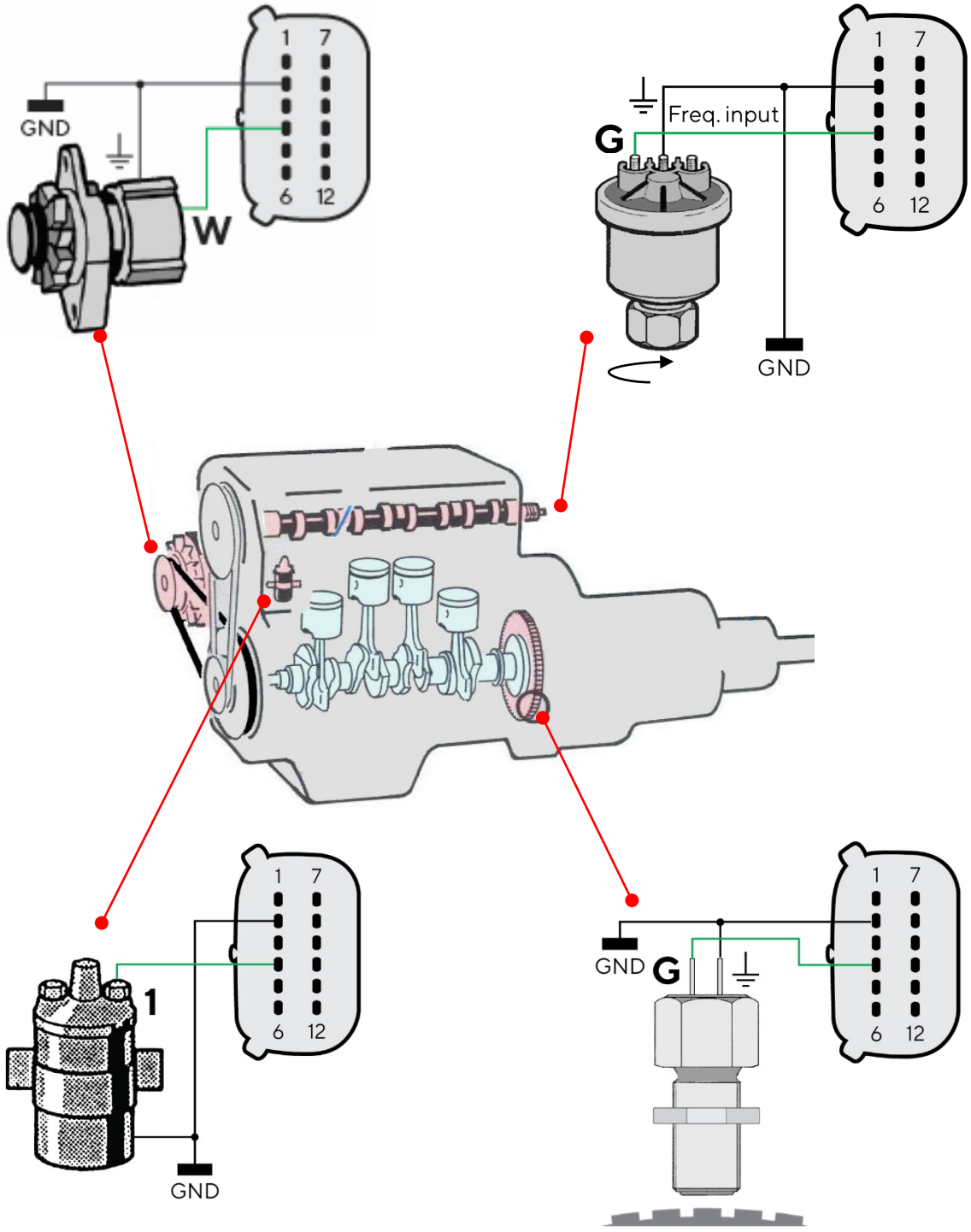


Designations in the circuit diagram

S1 - Day/Night mode switch (not included)
F1 - 3A fuse (not included)
B1 – External acoustic alarm / warning lamp (not included)
RES - Resistive inputs
RPM - Frequency input for tachometer
J1939 – SAE J1939 CAN port

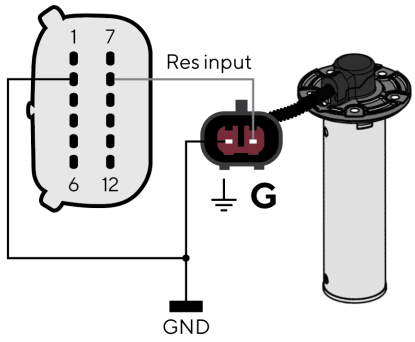
RPM SENSOR CONNECTION

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.

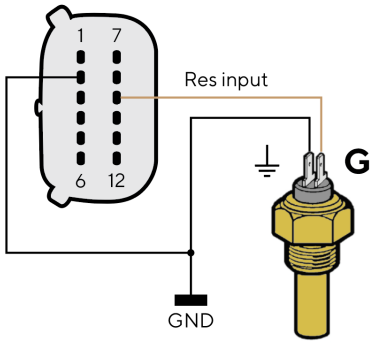


RESISTIVE SENSOR CONNECTION

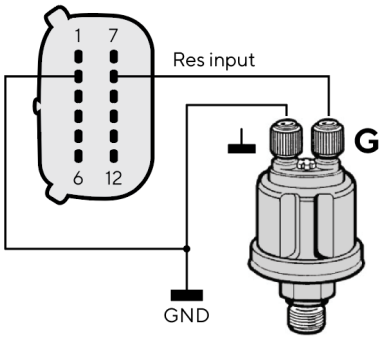
Any sensor connected to a resistive input of the display must be connected as shown in the figure.
It is advisable to use sensors with isolated ground, and it is necessary to ensure that the sensor ground is connected to the display ground to avoid incorrect readings.



Tank level sensor connected to resistive input 8



Temperature sensor with isolated ground
connected to resistive input 9



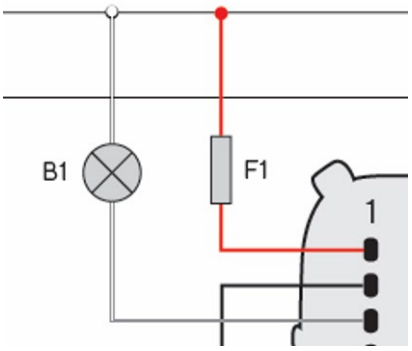
Pressure sensor with isolated ground
connected to resistive input 8

EXTERNAL BUZZER CONNECTION (B1)

The display supports the connection of one external alarm (B1) via the dedicated alarm output.

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 support is 500mA.



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 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.

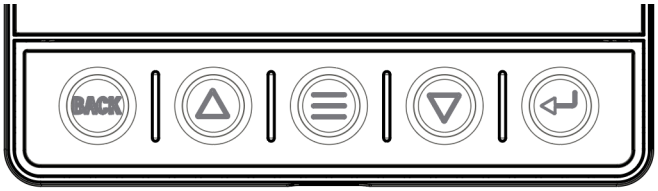
GETTING STARTED

SWITCHING ON AND OFF

The display's on/off mode depends on the status of the Ignition signal.
At power up, logo and firmware version will appear when turned on, followed by the last data page viewed before the display was last turned off.

It is possible to customize the startup image displayed at power up using the Veratron Configuration Tool. Contact your veratron dealer for more information.

BUTTON FUNCTIONS



Button	Name	Generic Function
	BACK	Short press: • In normal operation: Day/Night Mode switch • In menus: Return to the previous menu 3 sec press: • From any point to return to the data pages
	UP DOWN	Short press: • Scroll screens/options/menu items
	MENU	Short press: • Open the menu • Return to the previous menu 3 sec press: • In normal operation: Edit current screen • In menus: Return to the data pages
	ENTER	Short press: • Open a sub-menu • Confirm the selection

STARTUP CHECKLIST

Following are the steps for initial configuration:

1. Connect eventual sensors to the display's analog inputs.

2. Set up the boat setup with the "System Setup" menu:
    - Engine setup (engine amount / min and max / idle speed, etc....)
    - Tanks setup (amount / types / capacities)
    - Battery setup

3. Set up the display settings, like units or brightness levels.

4. Add/remove screens selecting the best layout and data to be displayed.

5. Calibrate the analog sensors, if any has been connected.

6. Set up local alarms if required.

SPLASH LOGO CUSTOMIZATION

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.

SCREENS

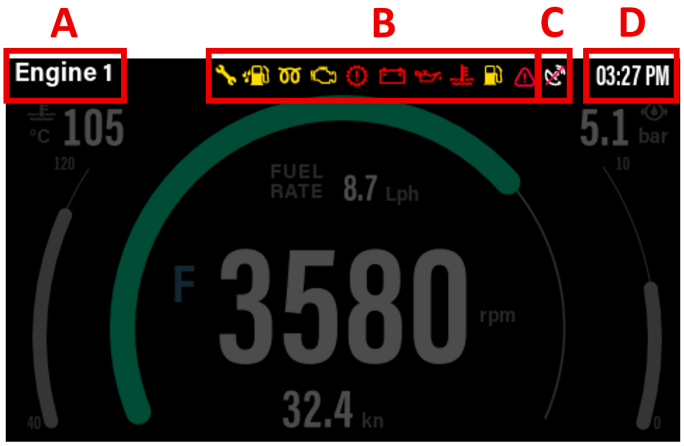
The display can store up to 10 screens which the user can configure and scroll.

SCREENS SCROLLING

To scroll pages, press the UP or DOWN buttons.
To add/delete/edit screens, see "Screen configuration".

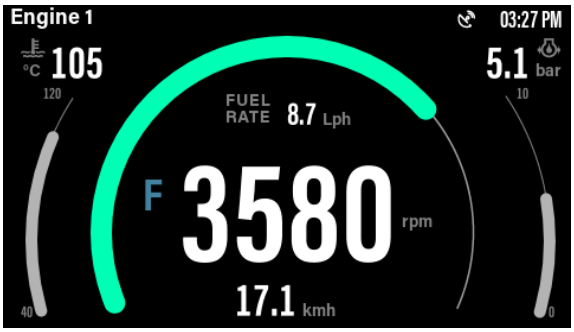
NOTIFICATION BAR

Every screen displays a notification bar on its top side, which is always displayed independently of the screen layout which is chosen.



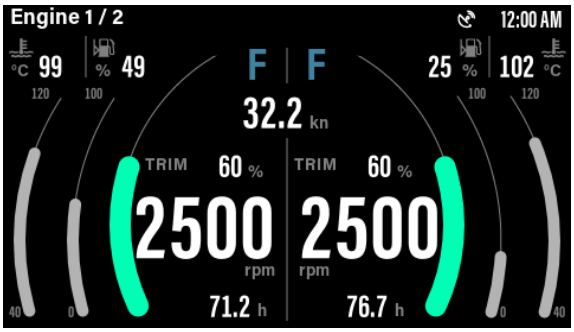
Part	Description
A	Screen name
B	Alarm lamps
C	GPS signal status
D	Clock

Each of the 10 screens can be customized with one of the following available layouts:



SINGLE ENGINE layout

Dedicated screen for single engine monitor with two customizable bar graphs, gear indicator, and additional two numeric fields to have all your engine information always under control.

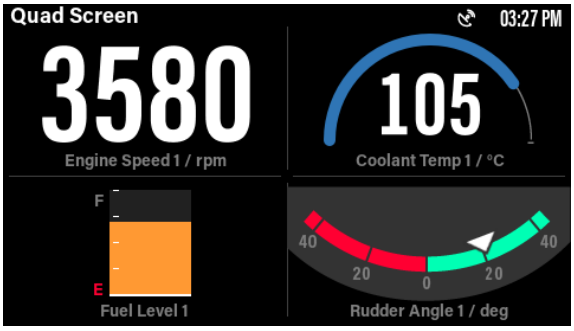


DUAL ENGINE layout

Dedicated screen for dual engine setups, to have all the information on one screen. All the bar graphs and the numeric fields can be customized to display the most relevant data.

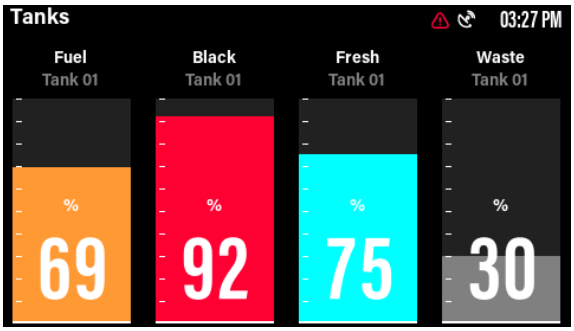
FULLSCREEN

Single data display with big numeric digits for the best clarity of your critical data.



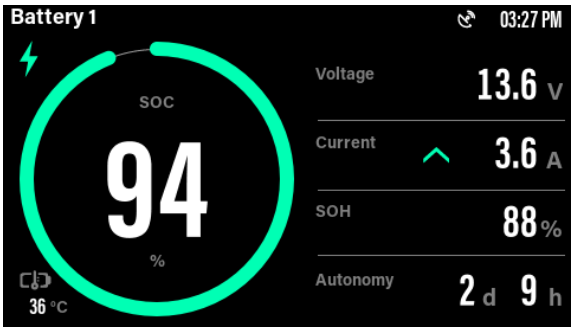
QUAD SCREEN

Four customizable fields, each one capable of both numeric information and special elements like gauges, bar graphs, and more.



TANKS

Display of up to four tanks, with colored bars and numeric indication of the filling quantities.
Fuel / Fresh / Waste / Black Water levels are supported.



INTELLIGENT BATTERY MONITOR

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

SUPPORTED DATA

Group	Data	Input				Output	
		NMEA 2000	SAE J1939	Analog	Internal	NMEA 2000	EasyLink
Engine	RPM	X	X	X	-	X	
	Gear Position	X	X	-	-	-	
	Trim	X	-	X	-	X	
	Boost Pressure	X	X	X	-	X	
	Coolant Press	X	X	-	-	-	
	Coolant Temp	X	X	X	-	X	
	Fuel Rate	X	X	-	-	X	
	Fuel Pressure	X	X	-	-		
	Air Charge Temp	X	X	-	-		
	Engine Load	X	X	-	-	X	
	Exhaust Temp	X	X	-	-	X	
	Engine Oil Temp	X	X	X	-	X	
	Engine Oil Pressure	X	X	X	-	X	
	Transmission Oil Temp	X	X	X	-	X	
	Transmission Oil Press	X	X	X	-	X	
	Engine Hours	X	X	-	X	X	
	Alternator Potential	X	X	-	-	X	
Tanks	Fuel Level	X	X	X	-	X	
	Fresh Water Level	X	-	X	-	X	
	Waste Water Level	X	-	X	-	X	
	Black Water Level	X	-	X	-	X	
Battery	Battery Voltage	X	X	-	X	X	
	Battery Current	X	X	-	-	X	
	State Of Charge	X	-	-	-	-	
	State Of Health	X	-	-	-	-	
	Battery Temperature	X	-	-	-	-	

SUPPORTED DATA

Group	Data	Input				Output	
		NMEA 2000	**SAE J1939**	**Analog**	**Internal**	**NMEA 2000**	**EasyLink**
	Autonomy	X	-	-	-	-	
Boat	Rudder Angle	X	-	X	-	X	
	Depth	X	-	-	-	-	
	Course Over Ground	X	-	-	-	-	
	Heading (True/Mag)	X	-	-	-	-	
	Boat Speed	X	-	-	-	-	
	Speed Over Ground	X	-	-	-	-	
	Velocity Made Good	X	-	-	-	-	
	Pitch	X	-	-	-	-	
	Roll	X	-	-	-	-	
	Position	X	-	-	-	-	
	Bearing To Waypoint	X	-	-	-	-	
	Distance To Waypoint	X	-	-	-	-	
	Trip Time	X	-	-	X	-	
	Trip Distance	X	-	-	X	-	
	Trim Tabs	X	-	-	-	-	

ENGINE HOUR COUNTER

The OL43 display maintains an internal hour counter for each engine (1 to 4).
The hour counters are active when the related engine speed is more than 300 RPM.

For each engine, the user can choose whether to display the internal counter or to display the data received from another source by accessing the Data Source feature in the Network Menu.

In case an engine is connected via frequency input (RPM), the related internal hour counter is also transmitted on the NMEA 2000 network if this option is active (Network → NMEA 2000 → Gateway → ON).

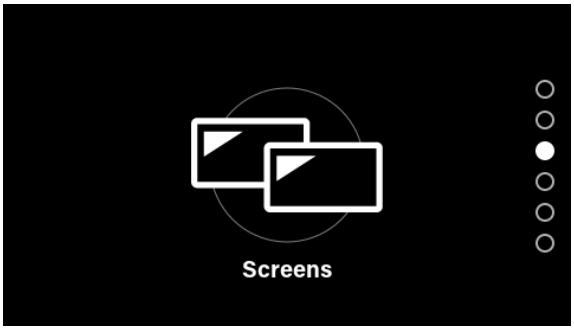
DISTANCE TRAVELED

The indicator internally calculates the distance travelled (Trip Distance) based on the speed value set in the menu Setup → Speed Reference.

SCREENS CONFIGURATION

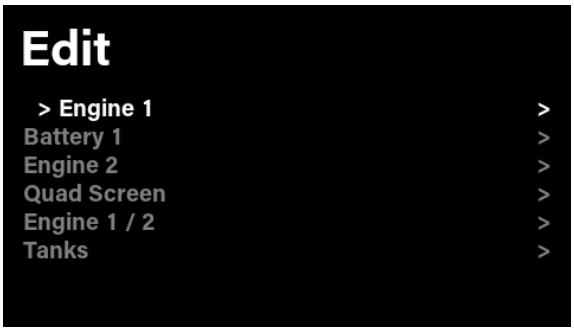
1. Access the display menu by pressing the MENU button and select the SCREENS submenu to enter the screens' configuration.

   Select "**New**" to add an additional screen. → step 3
   "**Edit**" to modify/delete an existing screen. → step 2
   "**Reset**" to set the factory default screens



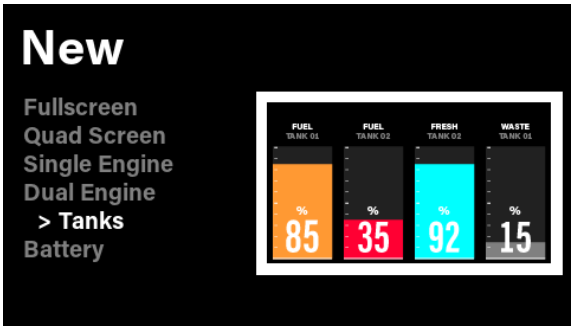
2. In case "**Edit**" is selected, the display will list all the screens that are currently defined.

   Select the screen to be edited/deleted.



3. Select the layout for the new screen or for the screen to be edited.

   See the "Screens" chapter for more details about each layout.



4. Depending on the layout defined, it is possible to customize some data fields or bar graphs by selecting "**Edit Data**".

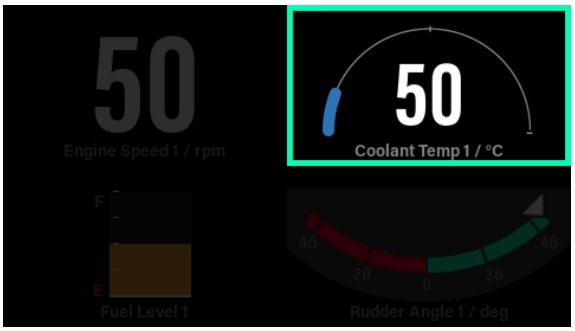
   For the Engine and Battery screens it is possible to define the instance to be displayed.

   The "**Remove**" option deletes the current screen.

5. The currently selected item is highlighted with a green frame.

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

   Press ENTER to select the item to be customized.



6. Once a field is selected it is possible to select which data to display in that field.

   The data available for that selected field is hierarchically arranged into groups.
   Press the UP/DOWN/ENTER buttons to navigate the menu to find the data to be displayed.

   See “Supported Data” for the complete list of available data.

7. In the Quad layout, a special display format can be chosen for some data, like a bar graph or a gauge.

   Once the data is found, press ENTER to confirm the selection.

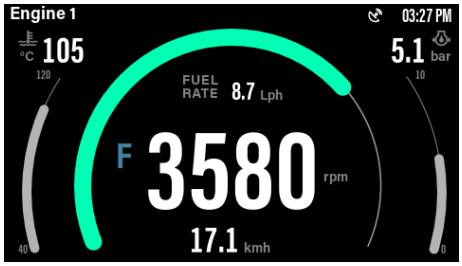
8. To customize another field just select it as described in step 5.

   To customize another screen press BACK many times until the screen is back to the selection described in step 2.

   To quit the settings and return to normal operation, press the BACK button for 3 seconds.

SCREEN EDIT SHORTCUT

To quickly modify an existing screen during normal operation, keep pressing the MENU button for 3 seconds while displaying the screen to be edited.



Normal operation

→

Press MENU
for 3 sec

→

Edit Screen (step 4 above)

The display will show the editing properties for the selected screen, as described in step 4 of the screens customization process.

DISPLAY SETTINGS

BRIGHTNESS SETUP

Setting	Description	Possible values / commands
Intensity	Brightness of the display. NOTE: this setup affects all the EasyLink gauges connected to the display.	0 (min) to 10(max) (default = 10)
Sync	The display shares the brightness intensity via NMEA to other displays if the “Sync” option is set to “Yes”	Yes / No (default = Yes)
Zone	Used to assign the display to a zone. When the Sync function is activated, the display shares the same brightness level only with other devices in the same zone.	ALL / 1 to 4 (default = ALL)

The display brightness selected is stored for the current Day/Night mode, see next chapter.
(If intensity is changed while in Day mode, then the setting is stored for Day mode. Same for the Night mode).

DAY / NIGHT MODE

The OL43 display stores two backlight configurations for the display: one for Day mode and one for Night mode.

Setting	Description
Day	Forces the display in Day mode.
Night	Forces the display in Night mode (red color palette).
External	The Day or Night mode depends on the status of the illumination pin 10 (orange wire), which can be connected to the boat cabin lights’ switch. To Battery Plus = Night mode Open = Day mode

Factory default = External.

DAY / NIGHT SWITCH SHORTCUT

To quickly switch between Day and Night mode during normal operation, press the BACK button while displaying any screen.
The shortcut does not work if “External” is selected as input for the switch.

Day mode

Night mode

CLOCK SETTINGS

Setting	Description
Format	12h / 24h (default = 24h)
Clock Offset	-12h to +12h (default = 0h)

UNITS

Setting	Metric	Imperial	Nautical	Custom
Depth	m	ft	ft	m, ft
Temperature	°C	°F	°F	°C, °F
Distance	km	mi	nm	km, mi, nm
Speed	kn	mph	kn	km/h, mph, kn
Volume	L	Gal	US Gal	%, L, US Gal, UK Gal
Atm. Press	hPa	hPa	hPa	mbar, hPa, mmHg, inHg
Fluid Press	bar	PSI	PSI	bar, kPa, psi
Consumption	Lph	Gph	US Gph	Lph, UK Gph, US Gph
Economy	Km/L	Mpg	Nm/L	Km/L, mpg, Nm/L
Wind speed	kn	kn	kn	km/h, kn, m/s, mph

Factory default = Metric.

RESET

Setting	Description
Reset Trip	Resets both the Trip Time and Trip Distance counters
Reset Screens	Resets the screens configuration to the factory defaults in terms of number of screens, layout, and data displayed.
Reset Sensors	Resets the settings and calibrations of the analog sensors.
Reset Factory	Display factory reset.

After the selection, a confirmation popup appears to avoid accidental resets.
Press YES to confirm the operation and perform the reset.

DEMO MODE

Setting	Description
ON	Activates the demo mode.
OFF	Deactivates the demo mode.

Factory default = OFF.

The demo mode simulates data on the display and on the EasyLink satellite devices.
For safety reasons, the simulated data are NOT transmitted on the NMEA 2000 network.

SYSTEM SETUP

ENGINE / BATTERY SETUP

Setting	Description	Possible values / commands
Engine Setup	Number of engines of the boat	1 to 4 (default = 1)
Battery Setup	Number of batteries on the boat	1 to 4 (default = 1)

This information is used to tailor the available options down to the actual boat configuration (e.g., when selecting the instance of an engine data, or for the engine screen layout).

TANKS SETUP

Setting	Description	Possible values / commands
Fuel	Number of fuel tanks. For each tank it is possible to define the capacity.	1 to 4 (default = 1) Capacity 0 to 5000 L (default = N/D)
Fresh Water	Number of fresh water tanks. For each tank it is possible to define the capacity.	1 to 4 (default = 1) Capacity 0 to 5000 L (default = N/D)
Waste Water	Number of waste water tanks. For each tank it is possible to define the capacity.	0 to 4 (default = 0) Capacity 0 to 5000 L (default = N/D)
Black Water	Number of black water tanks. For each tank it is possible to define the capacity.	0 to 4 (default = 0) Capacity 0 to 5000 L (default = N/D)

This information is used during other configurations to tailor the available options down to the actual boat configuration (e.g., when configuring analog tank sensors).

If the capacity for a specific tank is defined, or received from NMEA 2000, the related tank level in the display screens is available in remaining liters (or gallons) instead of fill percentage (if "%" is selected in the units setup).

SET SCALES

This setup is needed to define the min and max scale for some data when displayed in a gauge or bar graph format.

Setting	Possible values
Engine Speed	3000 – 10000 RPM (default = 5000 RPM)
Coolant Temp	0 – 200 °C (default = 40 - 120 °C)
Engine Oil Press	0 – 30 bar (default = 0 - 10 bar)
Engine Oil Temp	0 – 200 °C (default = 50 - 150 °C)
Transm Oil Temp	0 – 200 °C (default = 50 - 150 °C)
Transm Oil Press	0 – 30 bar (default = 0 - 25 bar)
Boost Press	0 – 30 bar (default = 0 - 2 bar)
Battery Voltage	0 – 40 V (default = 8 - 16 V)
Battery Current	-100 – 100 A (default = -100 - +100 A)
Speed	0 – 100 kn (default = 0 – 70 kn)

This setup is displayed in accordance with the unit settings defined by the user.

OFFSETS

Setting	Description	Possible values
Compass Offset	Offset for the heading data.	-180 to + 180° (default = 0)
Depth Offset	Positive values represent distance from transducer to the waterline, and negative values represent distance from transducer to the keel.	-50 to + 50 m (default = 0)
Rudder Offset	Offset for the rudder position.	-90 to +90° (default = 0)
Speed Correction Factor	Multiplication factor for the raw speed value received from the Log sensor.	x0.1 to x10 (default = 0)

Whenever an offset is defined for a data, the OL43 display also acts as source for that adjusted data by transmitting it over NMEA 2000.

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 of more than 0.5 kn, this factor can be adjusted.
Increasing the offset factor reduces the displayed speed through water (STW).

SERVICE RESET

With the "Service Reset" menu it is possible to reset the service notification for a specific engine to the "interval" defined in the Alarms menu (see dedicated chapter).

Setting	Description
ALL	Resets the service notification for all the engines.
Engine 1 to 4	Resets the service notification for a specific engine.

After the selection, a confirmation popup appears to avoid accidental resets.
Press YES to confirm the operation and perform the reset.

SPEED REFERENCE

Through this menu it is possible to select which data the display must use for internal calculations like the Trip Distance.

Setting	Description
SOG	Sets Speed Over Ground (SOG) as reference.
Boat Speed	Sets Boat Speed (Water Speed) as reference.

Factory default = SOG.

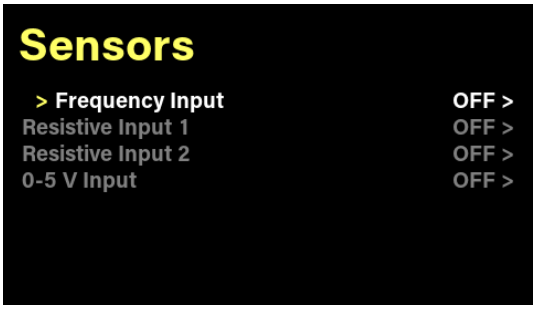
SENSORS CONFIGURATION

CONFIGURING A SENSOR

Once accessed to the Sensors menu, it is first needed to select the analogue port where the sensor output is physically wired.

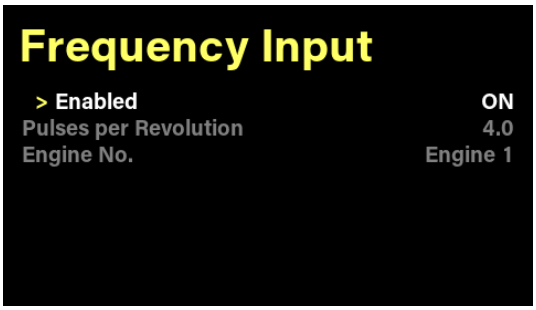
The available options are:

- Frequency input (pin 4 – Green wire)
- Resistive input 1 (pin 8 – Grey wire)
- Resistive input 2 (pin 9 – Brown wire)
- 0-5 V input (pin 7 – Yellow wire)



FREQUENCY INPUT SETUP

This menu is used to configure the display frequency input for RPM readings.



Setting	Description	Possible Values
Enabled	Enable or disable the input.	ON / OFF
Pulses per Revolution	The number of electrical pulses that the sensor generates for each full rotation of the engine's crankshaft.	1.0 to 600.0
Engine No.	The number of the engine connected to the input.	Engine 1 to 4 (the selection includes only the Engine number defined in the Setup menu)

The pulses per revolution value depends on the source used for the tachometer signal (alternator, magnetic pickup, etc...).

For more information about the tachometer input configuration, please consult the following link:
https://veratron.com/blogs/tech-papers/setup-your-tachometer

Factory default = OFF.

RESISTIVE AND 0-5V INPUT SETUP

This menu is used to configure the display frequency input for RPM readings.

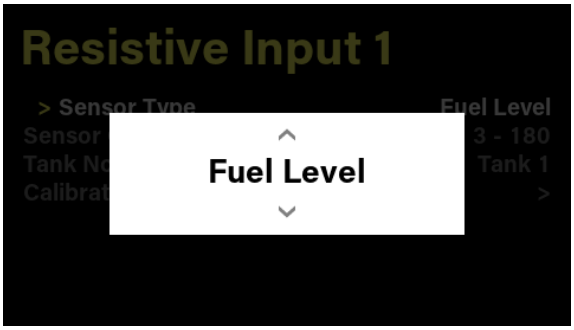
1. **INPUT SELECTION**

   Once accessed the menu for the analog port where the sensor is connected, it is possible to configure all the parameters such as:
   - Sensor Type
   - Sensor Calibration
   - Instance

2. **CHOOSE THE SENSOR TYPE**

   Access the "Sensor Type" menu to select the type of sensor that is connected to the analog port (Fuel Sensor, Temp Sensor, etc...)

   Consult the "Supported Data" table to check which sensor types are supported.

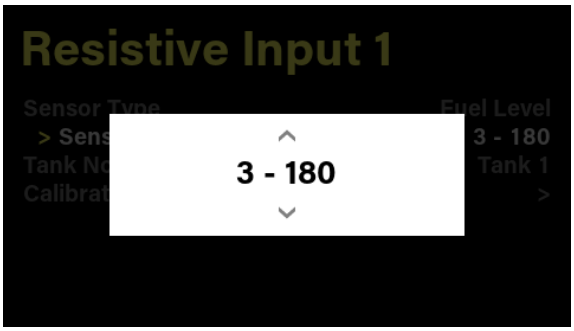


3. **SELECT THE SENSOR CURVE**

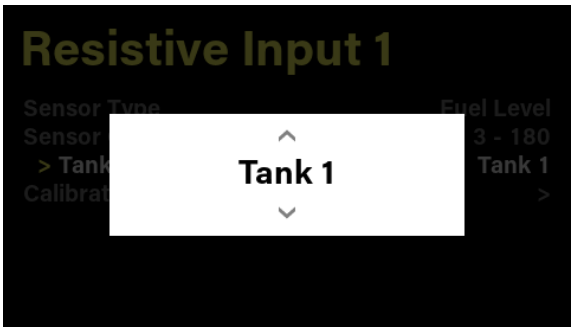
   Once defined the sensor type, it is required to select its characteristics.

   The display lists some **standard configurations** (see "Standard Calibrations" table), and a "**Custom**" option in case the sensor used is not available in the list.

   If the "Custom" option is selected, it is required to perform the calibration (see step 5).



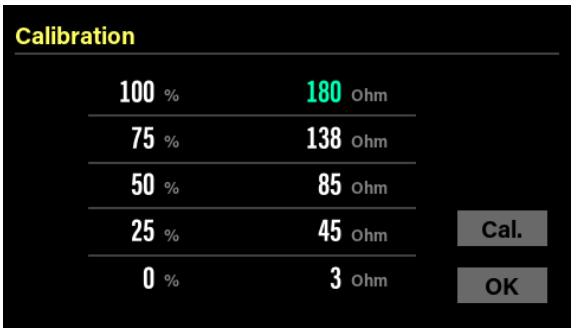
4. **CONFIGURE THE INSTANCE**



To correctly display the sensor data, it is needed to define an instance for the sensor, such as the **tank number** for a level sensor, or the **engine number** for an engine sensor.

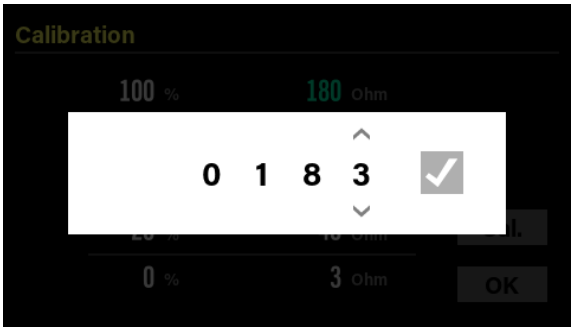
This setup also ensures that the sensor data is also correctly transmitted on the NMEA 2000 network, if the gateway function is active.

5. **CALIBRATE THE SENSOR**



For a more precise calibration of a standard sensor, or in case the sensor used is not listed, it is possible to input a **manual calibration**, by using the sensor datasheet.

By accessing the "Calibration" menu the current sensor calibration will be displayed in a table of 5 points.



On the left side the displayed value is shown (e.g. 100% tank level), while on the right side the correspondent sensor output for that level (e.g. 180 Ohm).

Use the UP / DOWN buttons to **select the value to be edited**, the current selected value will be highlighted in green color.

Press ENTER on the value to be edited and **input the correct value** and press ✓.

Once the table is fully customized press OK to save the custom configuration.

STANDARD CALIBRATIONS

Sensor	Calibration options (Resistive inputs)	Calibration options (0-5V input)
Fuel Level Fresh / Waste / Black Water Levels	3 – 180 Ω	0 – 5 V linear
	240 – 33 Ω	
	90 – 0.5 Ω	
Trim	167 – 10 Ω	0 – 5 V linear
Rudder	10 – 180 Ω	0 – 5 V linear
	5 – 90 Ω	
Coolant Temp	291 – 19 Ω (120°C)	0 – 5 V linear
Engine Oil Temp	291 – 19 Ω (150°C)	0 – 5 V linear
Engine Oil Press	10 – 184 Ω (5 bar)	0 – 5 V linear
	10 – 184 Ω (10 bar)	
Trans Oil Temp	291 – 19 Ω (150°C)	0 – 5 V linear
Trans Oil Press	10 – 184 Ω (25 bar)	0 – 5 V linear
	10 – 184 Ω (30 bar)	
Boost Press	10 – 184 Ω (2 bar)	0 – 5 V linear

TANK SENSORS LIVE CALIBRATION

For tank sensors (Fuel / Fresh / Waste / Black Water Level) it is possible to perform a "live" calibration with a step-by-step process that will result in a fine-tuned calibration for the actual tank.

Make sure the tank is empty before starting the calibration process and be prepared to fill the tank in five steps follow the on-screen instructions.

1. While displaying the sensor calibration table (see step 5 above) select the "Cal." button to enter the step-by-step calibration process.

2. With the tank empty (1st step) wait for the sensor reading to stabilize.
   The sensor reading is displayed as "Live Value" in the screen.

3. Once the value is stable press the "SET" button to confirm the reading.
   A popup message will ask to confirm the reading, press OK to go to the next step.

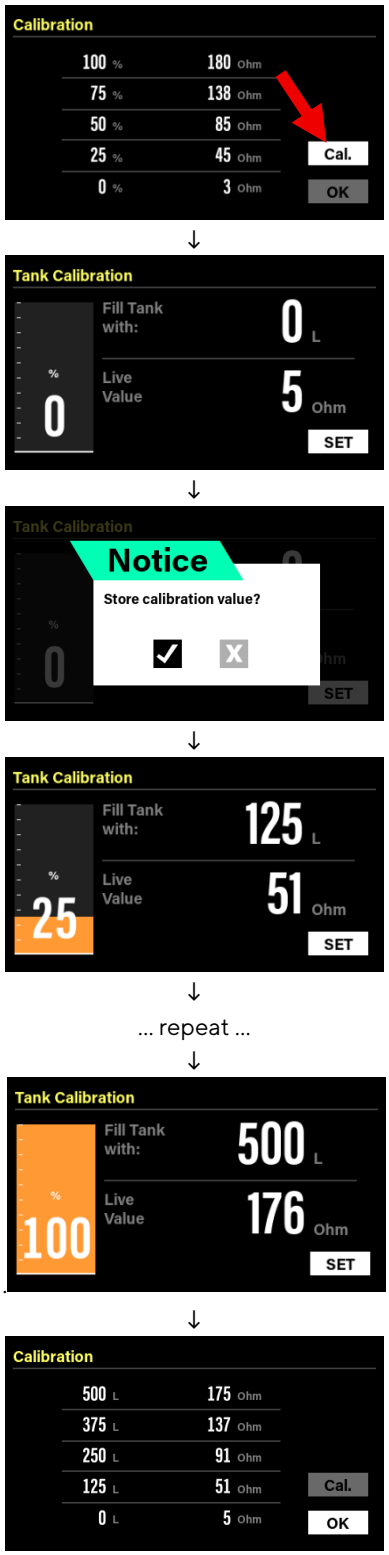
4. Now fill the tank at 25% and again wait for the sensor reading to stabilize.
   If the capacity of the tank has been set in the Setup menu, the display will notify the exact amount of liquid to fill the tank with.

5. Once the reading is stable press "SET" and confirm the reading by pressing OK in the confirmation popup.

6. Repeat steps 4 and 5 by filling the tank each time by the quantity indicated by the display.

7. Once the 5 steps are completed, the display will show the newly calibrated table as overview.

8. Press OK to confirm the calibration.



ALARMS

ALARM / WARNING NOTIFICATION

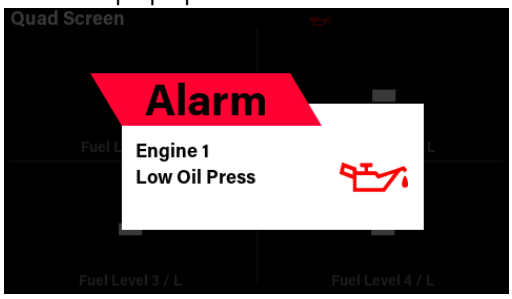
The OL43 display can display warnings and alarms either triggered locally or received from CAN interfaces.

In the event of an alarm, the display acts as follows, independently of the actual operation:

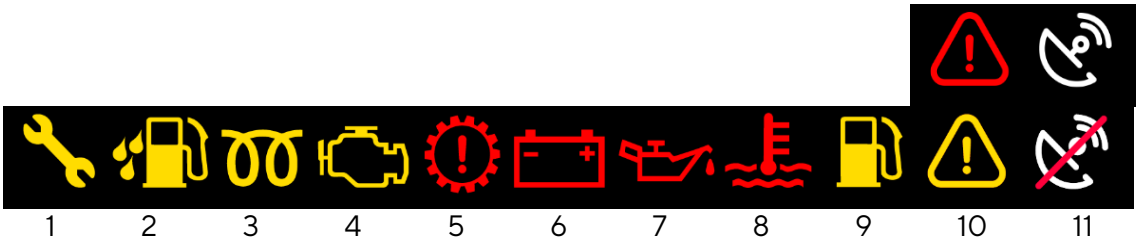
- An alarm/warning popup appears with alarm name / information and icon
- The related alarm icon is displayed in the notification bar
- The alarm output is activated, if configured
- The active alarm, including additional information, is visible on the Active alarms screen
- If supported and configured, the alarm is transmitted to the NMEA 2000 network

WARNING popup

ALARM popup



Alarm and Warning icons



Icon	Description
1	Service Maintenance
2	Water In Fuel
3	Preheat Indicator
4	Engine Alarm (MIL)
5	Transmission Alarm
6	Battery Alarm

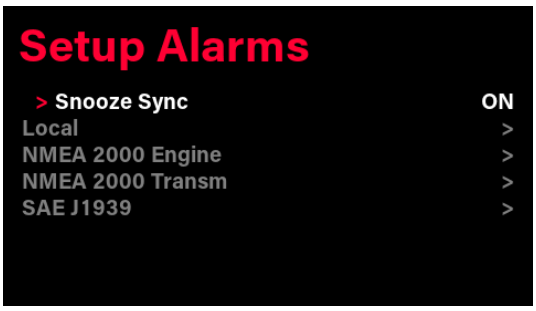
Icon	Description
7	Engine Oil Alarm
8	Coolant Temp Alarm
9	Low Fuel Indicator
10	Generic Warning (amber) and Generic Alarm (red)
11	GPS and No-GPS Icon

ALARM SNOOZE

When the popup is displayed after an alarm has occurred, it is possible to dismiss it by pressing the ENTER button.

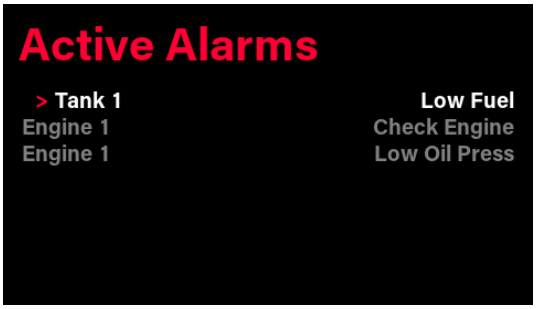
By dismissing the popup, the alarm output is also deactivated.
The related alarm icon in the notification bar will remain as a reminder of the active alarm, as long as the alarm is active.

If the **Snooze sync** function is active in the Alarm menu, the popup and the alarm output are also dismissed on other OL43 displays present on the NMEA 2000 network.



ACTIVE ALARMS

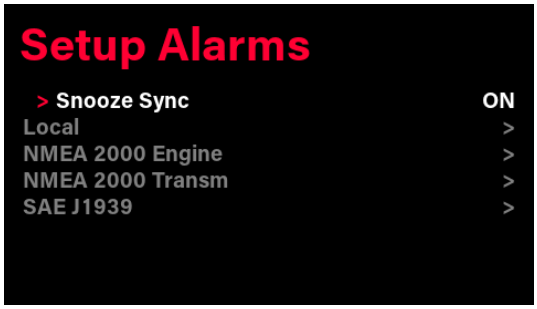
All the currently active alarms are listed on this screen.



SETUP A LOCAL ALARM

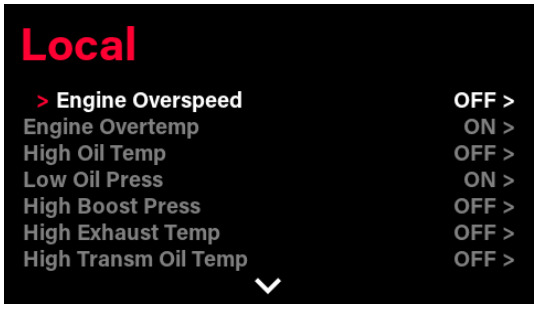
A local alarm is an alarm that is set and triggered by the OL43 display itself when a user-defined threshold is reached.

For each alarm it is possible to activate the alarm output.



How to set up a local alarm:

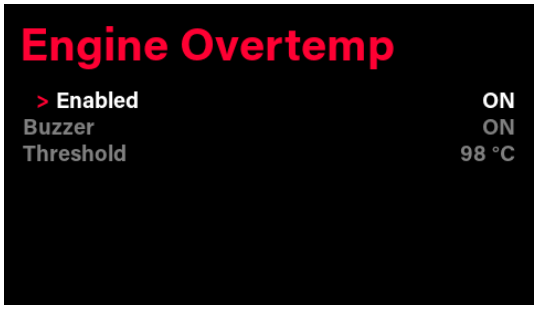
1. Access the Alarm → Setup Alarms → Local menu. The list of supported local alarms is displayed (see "Supported Local Alarms" table).



2. Choose the alarm to be set and press ENTER.

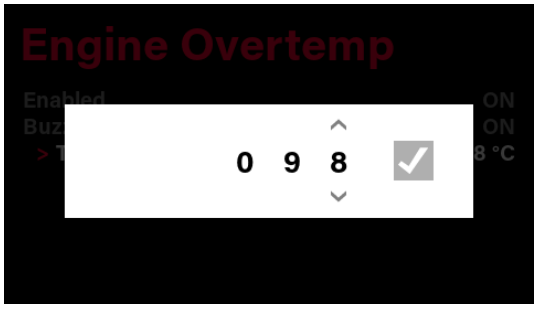
3. Activate the alarm by setting Enabled → ON.

4. If the alarm output is required for the alarm, activate it by setting Buzzer → ON.



5. Define the alarm threshold as last step and press OK when done.
   The alarm threshold is defined with the same unit as configured in the "Units" menu.

NOTE: The value used to activate the alarm is the same value defined for displaying the data (see "Source Selection").



Local alarm gateway on NMEA 2000

If the NMEA 2000 gateway is activated (see "NMEA 2000 gateway") the alarm (when active) is also transmitted on the NMEA 2000 network, if the NMEA 2000 protocol supports it.

SUPPORTED LOCAL ALARMS

Group	Alarm	Possible values	NMEA 2000 output
Engine	Engine Rev Limit		Yes
	High Coolant Temp		Yes
	High Oil temp		Yes
	Low Oil pressure		Yes
	High Boost Press		Yes
	High Exhaust temp		Yes
	High Trans Oil temp		Yes
	Low Trans Oil pressure		Yes
	Low Fuel pressure		Yes
	High engine load		Yes
	Maintenance		Yes
Tanks	Low Fuel		No
	Low fresh water		No
	High grey water		No
	High black water		No
Battery	Low voltage		Yes
	Overvoltage		No
	Low Battery SOC		No
	Battery temperature		No
	Low autonomy		No
Navigation	Shallow water		No
	High depth		No
	Boat speed		No
GPS	Signal lost		No

Factory default = All alarms OFF.

NOTE: To avoid wrongful detection of engine alarms, all the alarms under the "Engine" group, excluding the Service Notification, are only detected with RPM higher than the idling speed defined in Setup → Engine Idle Speed (engine running).

SERVICE NOTIFICATION

Within the local alarms it is possible to set up engine service intervals to get a notification when this interval is elapsed.

The service interval is expressed in hours, and it uses the engine hours as base counter for the calculation. The engine hours data used for this calculation is the one defined in the “Data Sources” menu.

Only one service interval setup is supported, which is valid for each engine in case of multiple engines.

Setting	Possible values
Enabled	ON / OFF
Interval	1 to 500 h

Factory default = OFF.

When the service interval expires, a warning popup is displayed at every power on of the display, like a standard warning notification.
The amber warning telltale is also displayed in the notification bar.

When active, the notification can be reset though the Setup → Reset Service menu.
The counter is then reset to the “Interval” defined.

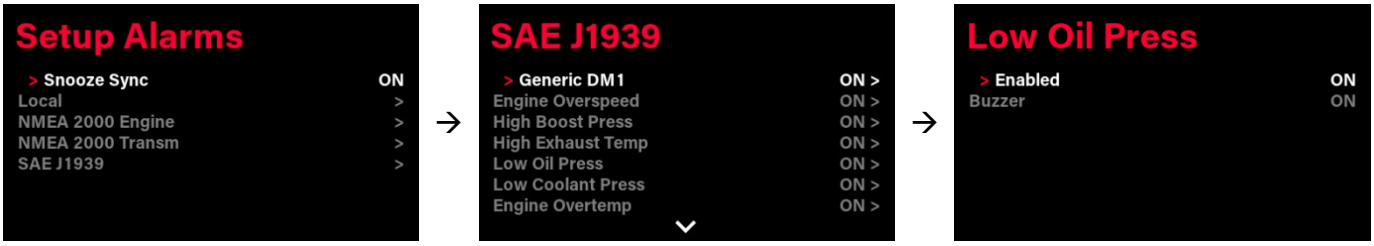
CONFIGURE NMEA 2000 ALARMS

Similarly to the local alarms, it is possible to activate alarms receive from the NMEA 2000 interface.

1. Access the Alarm → Setup Alarms → NMEA 2000 Engine (or Transmission) menu.
   The list of supported local alarms is displayed (see "Supported CAN Alarms" table).
2. Choose the alarm to be set and press ENTER.
3. Activate the alarm by setting Enabled → ON.
4. If the alarm output is required for the alarm, activate it by setting Buzzer → ON.

CONFIGURE J1939 ALARMS

Similarly to the local alarms, it is possible to activate alarms receive from the SAE J1939 interface.



1. Access the Alarm → Setup Alarms → SAE J1939 menu.
   The list of supported local alarms is displayed (see "Supported CAN Alarms" table).
2. Choose the alarm to be set and press ENTER.
3. Activate the alarm by setting Enabled → ON.
4. If the alarm output is required for the alarm, activate it by setting Buzzer → ON.

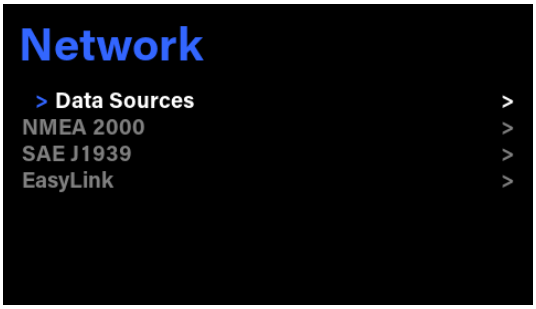
J1939 alarm gateway on NMEA 2000

If the NMEA 2000 gateway is activated (see "NMEA 2000 gateway") the alarm (when active) is also transmitted on the NMEA 2000 network, if the NMEA 2000 protocol supports it.

SUPPORTED CAN ALARMS

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

NETWORK SETTINGS



DATA SOURCE SELECTION

For each data it is possible to select the source where to display the data from.
See the “Input” column of the “Supported Data” table for an overview of all the supported sources for each data.

The source selected defines the source used for every calculation / output (e.g. NMEA 2000 gateway, EasyLink output, Service Counter, etc....)

Setting	Description	Possible Values
Auto	Automatically acquires the data from the interface where it is available.	-
NMEA 2000	Displays the data from a specific NMEA 2000 device in the network.	List of NMEA 2000 devices
SAE J1939	Displays the data from J1939 port.	-
Analog / Internal	Uses the local analog sensor reading or the internally calculated value (if applicable)	-

Factory default = Auto.

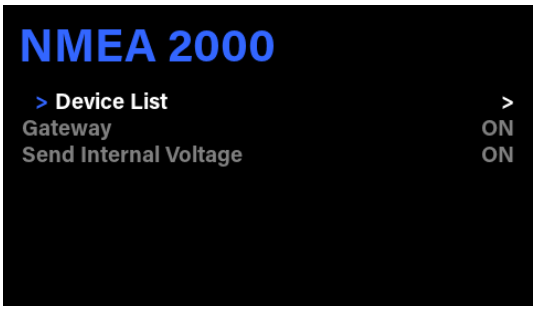
This feature is mostly needed in complex systems with redundancy of data (same data from multiple sources). In all the other cases, the “Auto” setting is the best option.

If multiple sources are sending the same data, the “Auto” option uses the following priority to display the data: ANALOG > SAE J1939 > NMEA 2000 > INTERNAL

NMEA 2000 SETUP

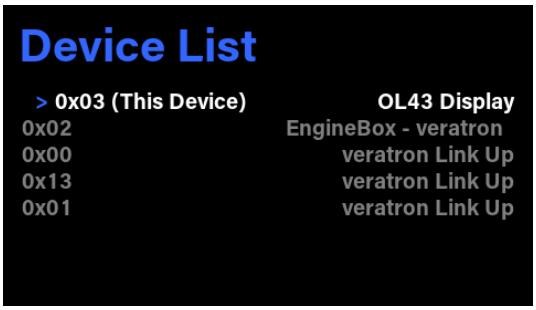
The OL43 display features an NMEA 2000 certified interface and a converter (gateway) that transmits the data measured from the analog sensors to the NMEA 2000 network.

With this menu it is possible to configure some parameters for the embedded gateway as well as to see every device currently connected to the network.



Setting	Description	Possible Values
Device List	Displays the list of devices connected to the NMEA 20000 network.	-
Gateway	Enables or disables the data forwarding to NMEA 2000 (from analog sensors and internal counters).	ON / OFF (default = ON)
Send Internal Voltage	When active, the display sends its own measured voltage to NMEA 2000 as Battery Voltage.	ON / OFF (default = ON)

In the Device List, every component connected to the network is listed with its address (in hexadecimal format) on the left side, and its name as it identifies itself in the NMEA 2000 network.



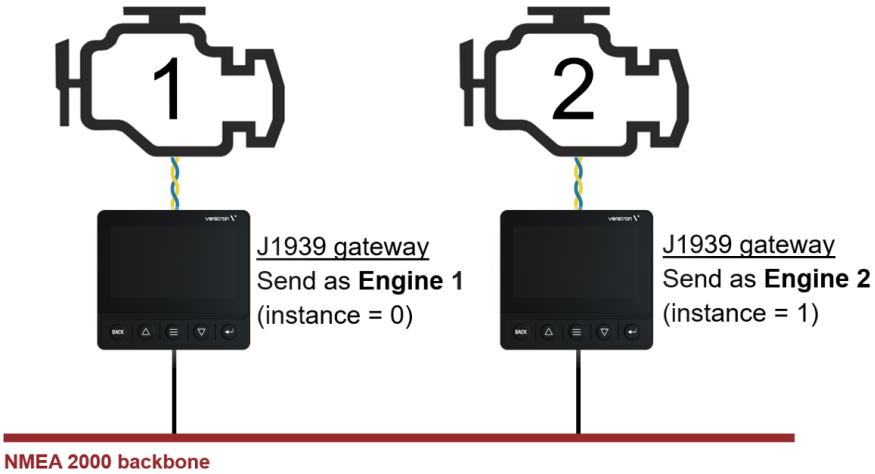
SAE J1939 SETUP

The OL43 display is equipped with one SAE J1939 port to connect a CAN engine to the display and read the digital data and alarms coming from it.

It is important to properly set up the J1939 gateway so that all the engine data received are displayed with the correct engine number.

This also ensures that the data is correctly forwarded to the NMEA 2000 network with the correct instance.

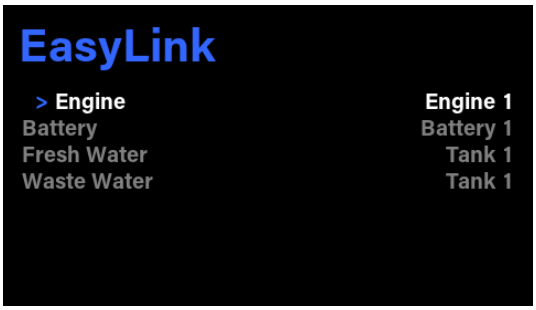
Setting	Description	Possible Values
Engine No.	The number of the engine connected via J1939. See picture below.	Engine 1 to 4 (the selection includes only the Engine number defined in the Setup menu) (default = Engine 1)
NMEA 2000 Gateway	Enables or disables the J1939 data forwarding to NMEA 2000.	ON / OFF (default = ON)



EASYLINK SETUP

The EasyLink protocol only supports one instance per data type (one specific engine, battery, or tank). This limitation is implemented to avoid confusion with the data displayed on the VMH14 satellites.

With the EasyLink menu it is possible to define for every “data group” which instance to display on the satellites.



TECHNICAL DATA

GENERAL FEATURES

Display	4.3" IPS TFT display with transmissive layer technology 480x272 pixels resolution
Front Lens	Mineral glass with antiglare coating
Housing	Ø 85 mm round panel cut-out Flame-retardant reinforced resin
Connectors	• Molex MX150 12 pins "A" coding • M12 5 pins "A" coding (NMEA 2000) • M12 5 pins "D" coding (Ethernet) • AMP SuperSeal 1.5 Series (on harness)
Analog ports	• 1x Frequency input • 2x Resistive inputs • 1x Voltage input (0-5 V)
Network Interfaces	• NMEA 2000 • SAE J1939 • EasyLink • Ethernet

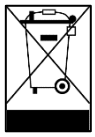
ENVIRONMENTAL FEATURES

Operating temperature	From -20 to +70 °C
Storage temperature	From -40 to +85 °C
Protection Class	IP X7 front and rear acc. To IEC60529 "Exposed Device"

ELECTRICAL FEATURES

Rated voltage	12 / 24 V DC
Operating voltage	9-32 V
Current consumption	< 300 mA @ 12 V with max backlight intensity 100mA for each EasyLink satellite gauge

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
Sun cover	B00129601
Power and data cable	A2C1433330001
Ethernet Adapter	B00229201
85mm Spinlock Nut	A2C1376090001

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.

REVISION HISTORY

Version	Changes	Date
Rev.AA	— Initial release	Oct. 2025

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