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# OceanLink Master 4.3" TFT display

Operating instruction  
v. 1.0



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## Customer service and warranty

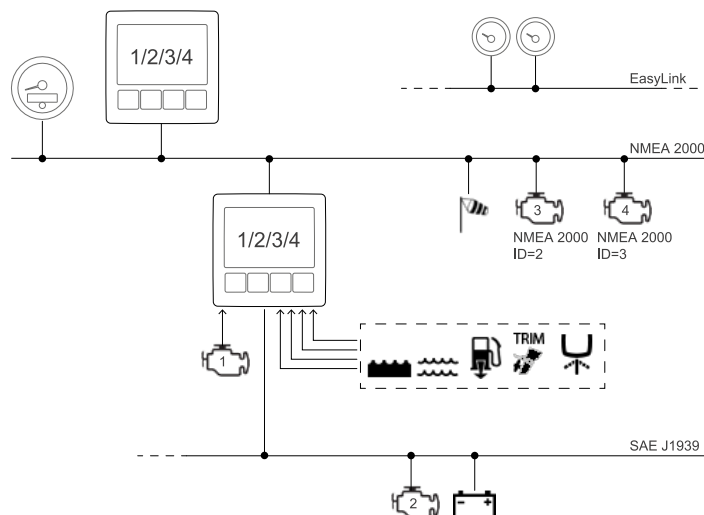
In the event of malfunction, fault or for information on the warranty,  
contact a VDO partner.  
To find a partner, visit [www.vdo-partner.com](http://www.vdo-partner.com).

# Introduction

## Description

OceanLink Master 4.3" is a multifunction display that lets you monitor engine and connected sensor parameters. A display shows data from a single engine. The integrated NMEA2000 gateway lets you acquire engine data via analog signals or SAE J1939, to then convert and distribute them on NMEA2000 network. In addition to engine data, the display lets you set up to four analog sensors (multiple choice between trim, fuel level, rudder angle, fresh and waste water). All data are also distributed on EasyLink network to a maximum of 16 52mm OceanLink gauges.

NMEA 2000 connectivity lets you view navigation data from other devices on the network, such as wind, compass, GPS, speed and depth data. Following is an example of an application with two displays, one used as a gateway and the other as a NMEA 2000 monitor.



## Operations

OceanLink Master 4.3" is a versatile device. It lets you monitor connected or other engine operations on the NMEA 2000 network in a single point.

Select the engine to be displayed when first turned on or when reset. Next, the displayed engine can be changed from the menu. Excluded engine data is never displayed.

## Received signal priority

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

1. Analog input
2. SAE J1939
3. NMEA 2000

## On/Off

The on/off mode depends on the connection made during installation.

The VDO logo and software version appear when turned on followed by the last page viewed for more than 10 s before turned off.

The first time it is turned on, the display prompts you to select the ID (*instance number*) of the engine to be viewed (on SAE J1939 or on NMEA 2000). If the engine is connected via frequency input, this assignment determines engine ID transmitted on NMEA 2000.

## Select the engine to be displayed

To view information on another engine:

1. Select **SYSTEM CONFIG > Display > Show data from engine nr.**
2. Or reset by selecting **SYSTEM CONFIG > Reset > Reset factory.**

## Button functions

| Button                                                                                                                                                                     | Function                                                                                                                                                                                                                                                           |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                                                         | <p>Briefly press:</p> <ul style="list-style-type: none"> <li>• Open the menu</li> <li>• Return to the previous menu</li> </ul> <p>Hold down:</p> <ul style="list-style-type: none"> <li>• from any point to return to the data pages</li> </ul>                    |
| <br> | <p>Scroll pages/options</p>                                                                                                                                                                                                                                        |
|                                                                                         | <p>Briefly press:</p> <ul style="list-style-type: none"> <li>• Open a sub-menu</li> <li>• Confirm the selection</li> </ul> <p>Hold down:</p> <ul style="list-style-type: none"> <li>• In the MediaBox page to save the selected station radio frequency</li> </ul> |

# Data pages

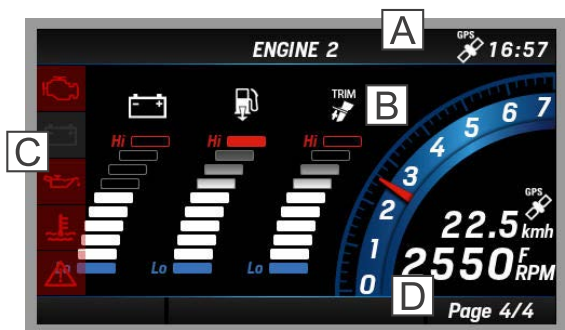
## What are data pages

Data pages display data received from the various sources. There can be up to 10 data pages. Four data pages and a MediaBox page are displayed by default. The **ALARMS** page appears after data pages if alarms are triggered.

## Possible operations

To scroll pages, press **▼** or **▲**. To add/delete/edit pages, see "Data page configuration" on page 7.

## Shared features



| Part | Description                                              |
|------|----------------------------------------------------------|
| A    | Monitored engine ID. GPS signal and time (if available). |
| B    | Data page content                                        |
| C    | Alarm bar. See "Alarm management" on page 13.            |
| D    | Data page progress bar                                   |

## Managed data

| Icon                                                                                | Information                | Input signal |           |               | Output signal |          | Unit of measure |
|-------------------------------------------------------------------------------------|----------------------------|--------------|-----------|---------------|---------------|----------|-----------------|
|                                                                                     |                            | NMEA 2000    | SAE J1939 | Analog sensor | NMEA 2000     | EasyLink |                 |
|  | Engine rpm                 | x            | x         | x             | x             | -        | rpm             |
|  | Trim                       | x            | -         | x             | x             | x        | %               |
|  | Boost pressure             | x            | x         | -             | x             | x        | bar / psi / kPa |
|  | Engine coolant temperature | x            | x         | -             | x             | x        | °C / °F         |
|  | Battery voltage            | x            | x         | x             | x             | x        | V               |

| Icon                                                                                | Information                  | Input signal |           |               | Output signal |          | Unit of measure            |
|-------------------------------------------------------------------------------------|------------------------------|--------------|-----------|---------------|---------------|----------|----------------------------|
|                                                                                     |                              | NMEA 2000    | SAE J1939 | Analog sensor | NMEA 2000     | EasyLink |                            |
|    | Fuel consumption             | x            | -         | -             | -             | -        | gal/h or l/h               |
|    | Engine oil temperature       | x            | x         | -             | x             | x        | °C / °F                    |
|    | Engine oil pressure          | x            | x         | -             | x             | x        | bar / psi / kPa            |
|    | Total engine operating hours | x            | x         | x             | x             | -        | h                          |
|    | Rudder angle                 | x            | -         | x             | x             | x        | °S (starboard) / °P (port) |
|    | Depth below transducer*      | x            | -         | -             | -             | -        | m / ft                     |
|    | Fuel level                   | x            | x         | x             | x             | x        | %                          |
|    | Fresh water level            | x            | -         | x             | x             | x        | %                          |
|   | Waste water level            | x            | -         | -             | x             | x        | %                          |
|  | Sea water temperature        | x            | -         | -             | -             | -        | °C / °F                    |
|  | Course over ground (COG)     | x            | -         |               |               | -        | °T (true North)            |
|  | Real course                  | x            | -         | -             | x             | -        | °                          |
| <b>AWA</b>                                                                          | Apparent wind angle (AWA)    | x            | -         | -             | x             | -        | °                          |
|  | Apparent wind speed (AWS)    | x            | -         | -             | x             | -        | km/h                       |
|  | Speed through water (STW)    | x            | -         | -             | -             | -        | mph / kn or km/h           |
|  | Speed over ground (SOG)      | x            | -         |               |               | -        | mph / kn or km/h           |

**Note\*:** the displayed value depends on any set offset. It is the depth below transducer by default (offset = 0).

# Data page configuration

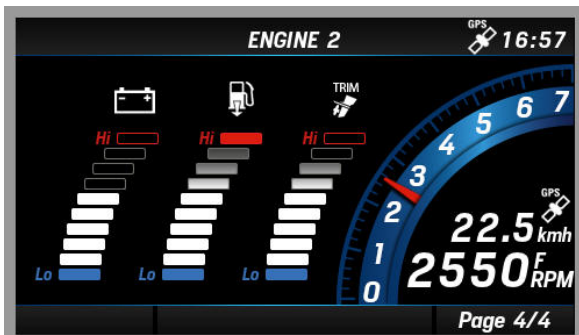
## Configuration via layout

Each display page can be customized using the four editable layouts plus a default layout for MediaBox commands.

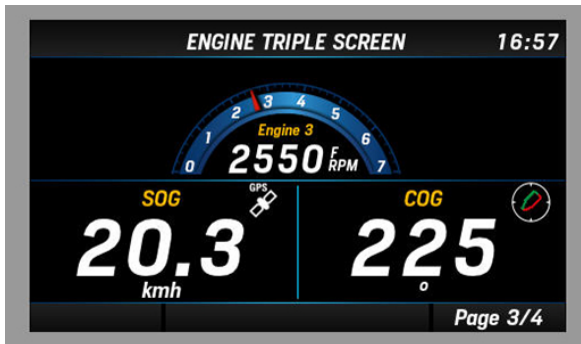
## Layout description



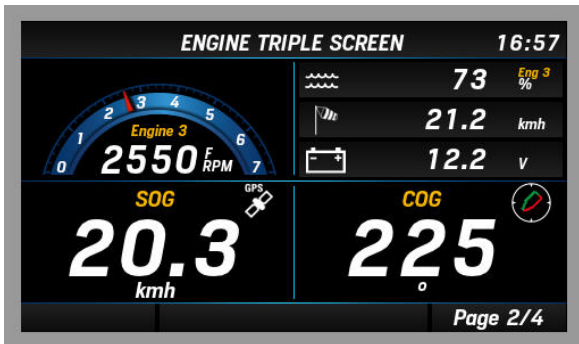
Layout **SINGLE**: single box. The data value is numeric or displayed by a gauge.



Layout **GRAPH**: with three bar graphs for the data selected from Boost pressure, Trim, Engine coolant temperature, Battery voltage, Fuel consumption. One engine revolution gauge and one for Speed over ground (SOG) not editable.



Layout **TRIPLE**: three boxes, from a minimum of three data to nine data.



Layout **QUAD**: four boxes, from four to 16 data.



MediaBox page. See "MediaBox use" on page 22.

## Add a page with three-box layout

Following is an example of how to add a page to view five data (two in single boxes and three in a triple box).

1. Press the **MENU** button and select **SCREEN CONFIG**.
2. Scroll until you see an empty page ("**NO SCREEN**") and select it.
3. Scroll and select the page layout **TRIPLE**: the layout opens with the first box green.
4. Press the **ENTER** button: the box layouts appear.
5. Select the layout **SINGLE**: the page layout reappears with the box red.
6. Scroll and select the required data: the box turns green.
7. Place the cursor on another box and repeat the procedure in step 4 selecting the box layout **TRIPLE**: the page layout reappears with the box divided in three sectors.
8. Select the sector to be set: the sector border turns red.
9. Scroll and select the required data: the sector border turns green.
10. Repeat the procedure from step 4 for the other box.
11. Hold down the **MENU** button to save settings and return to the data page.

## Delete a page

How to delete a page:

1. Press the **MENU** button and select **SCREEN CONFIG**.
2. Scroll until you see the page to be deleted and select it.
3. Scroll and select page layout **REMOVE**: layout **REMOVE** appears in correspondence to the page.
4. Hold down the **MENU** button to save settings and return to the data page.

**Note:** the deleted page disappears. To add it again, see the example "Add a page with three-box layout" above.

## Apply a different layout to a page

How to edit a page layout:

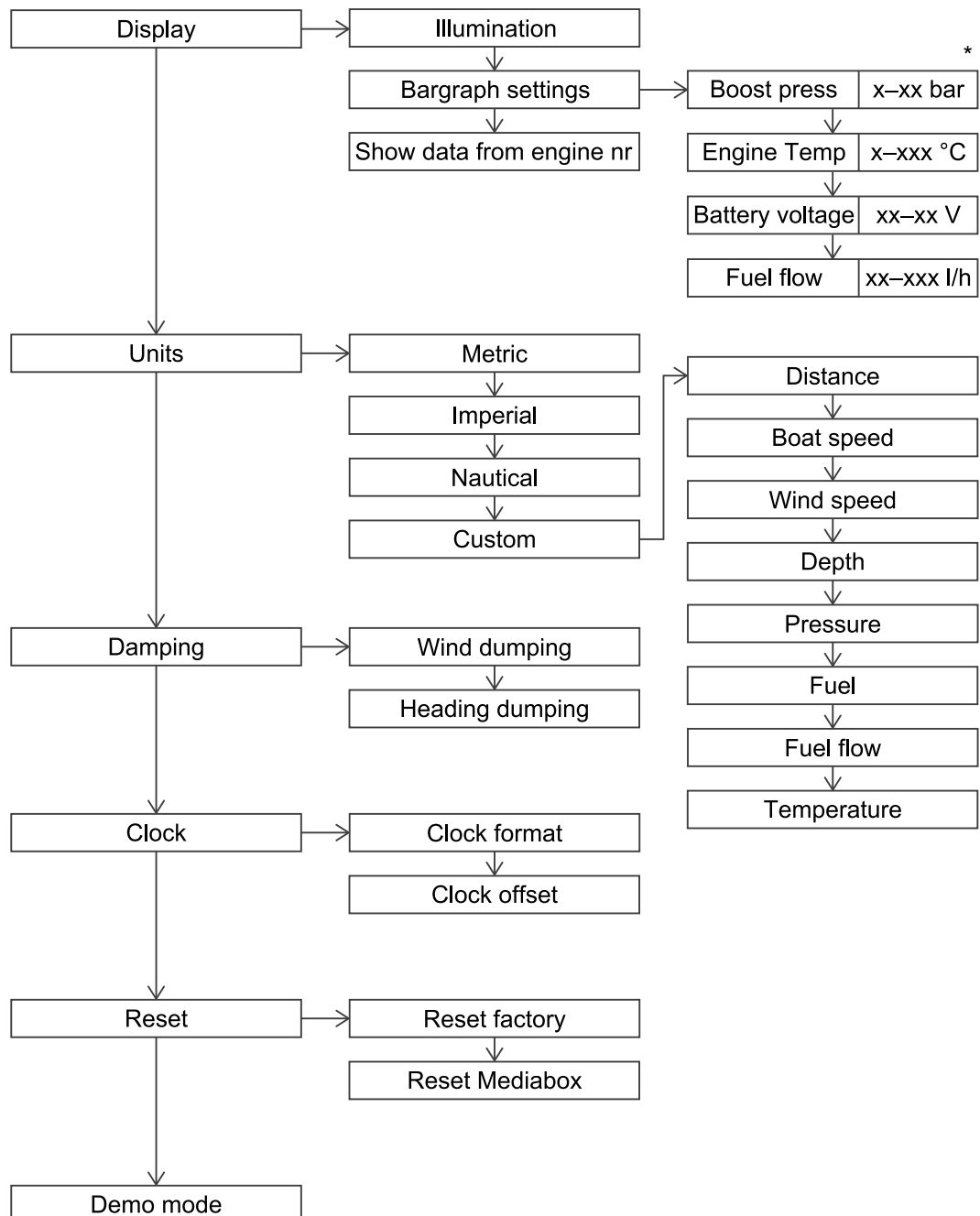
1. Press the **MENU** button and select **SCREEN CONFIG**.
2. Scroll until you see the page to be edited and select it.

3. Scroll and select the new layout: the page opens.
4. Select the box layouts and data to be displayed.
5. Hold down the **MENU** button to save settings and return to the data page.

# System settings

## Menu layout SYSTEM CONFIG

**Note\*:** the units of measure depend on parameter **SYSTEM CONFIG > Units**



## Configure the display

Following are the steps for initial configuration:

1. Connect any other sensors to analog inputs.
2. When turned on, indicate the engine ID to be monitored:

| If...                                                    | Then....                                                                                                                                                                                                                                                                                                                                            |
|----------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| the engine is connected to a frequency input             | <ul style="list-style-type: none"> <li>• assign an ID compatible with engines already on the network. To obtain the ID, increase the NMEA 2000 ID by one (i.e.: NMEA 0 ID = <b>Engine 1</b>, NMEA 1 ID = <b>Engine 2</b>, etc.).</li> <li>• Enable the sensor connected to the engine (<b>Frequency input config = On</b> in this menu).</li> </ul> |
| the engine is already on the NMEA 2000/SAE J1939 network | select the engine on NMEA 2000 to view data considering that the original ID was increased by one (i.e.: <b>Engine 1</b> =NMEA 0 ID, <b>Engine 2</b> = NMEA 1 ID, etc.).                                                                                                                                                                            |

3. Set general OceanLink Master 4.3" operations (this menu)
4. Set the types of connected VDO sensors or calibrate third party sensors (see "Sensor configuration" on page 17).
5. Add/remove data pages selecting the best layout and data to be viewed (see "Data page configuration" on page 7).
6. If a page layout with bar graphs are used, customize the minimum and maximum intervals (**Bargraph settings** in this menu)
7. Enable/disable local input and NMEA 2000 and J1939 alarms (see "Alarm management" on page 13).

## Menu description SYSTEM CONFIG

**Note\*:** the underlined value/command is the default value/command. The units of measure depend on parameter **SYSTEM CONFIG > Units**

| Setting                               | Description                                                                                                                                                                                                                            | Possible values/commands*                                                                                                                                                                                                                                                    |
|---------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Display ><br>Illumination             | Display and connected 52 mm gauges brightness                                                                                                                                                                                          | <u>1-7</u>                                                                                                                                                                                                                                                                   |
| Display ><br>Bargraph settings        | Bargraph interval (values <b>Hi</b> and <b>Lo</b> ).                                                                                                                                                                                   | <ul style="list-style-type: none"> <li>• <b>Boost press</b>: 0–14 bar (default = 0–1)</li> <li>• <b>Engine temp</b> 0–300 °C (default = 0–200)</li> <li>• <b>Battery voltage</b> 8–32 V (default = 10–16)</li> <li>• <b>Fuel flow</b> 0–800 l/h (default = 0–150)</li> </ul> |
| Display ><br>Show data from engine nr | Engine to be monitored.<br><br><i>Note: if the engine is already on the NMEA 2000/SAE J1939 network, the number displayed is increased by 1 from the original (i.e.: <b>Engine 1</b>=NMEA 0 ID, <b>Engine 2</b>= NMEA 1 ID, etc.).</i> | <u>ENGINE 1/ ENGINE 2/ ENGINE 3/ ENGINE 4</u>                                                                                                                                                                                                                                |

| Setting                                    | Description                                                                                                  | Possible values/commands*                                                                                                                                                                                           |
|--------------------------------------------|--------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Display ><br>Units                         | Units of measure for the values displayed.                                                                   | <ul style="list-style-type: none"> <li>• <b>Metric</b></li> <li>• <b>Imperial</b></li> <li>• <b>Nautical</b></li> <li>• <b>Custom</b>: fully customizable</li> </ul> <p>See "Unit of measure" on the next page.</p> |
| Damping ><br>Wind damping/ Heading damping | Data damping, see "Damping" below                                                                            | <ul style="list-style-type: none"> <li>• <b>No</b></li> <li>• <b>Low</b></li> <li>• <b>Medium</b></li> <li>• <b>High</b></li> </ul>                                                                                 |
| Clock ><br>Clock format                    | Time format                                                                                                  | <ul style="list-style-type: none"> <li>• 12 h</li> <li>• 24 h</li> </ul>                                                                                                                                            |
| Clock ><br>Clock offset                    | Time zone                                                                                                    | From -12 to +12 h (0)                                                                                                                                                                                               |
| Reset ><br>Reset factory                   | Restore all settings including MediaBox to factory settings                                                  | <ul style="list-style-type: none"> <li>• <b>Yes</b></li> <li>• <b>No</b></li> </ul>                                                                                                                                 |
| Reset ><br>Reset MediaBox                  | Only restore MediaBox settings to factory settings                                                           | <ul style="list-style-type: none"> <li>• <b>Yes</b></li> <li>• <b>No</b></li> </ul>                                                                                                                                 |
| Demo mode                                  | Device operating simulation.<br><i>Note: simulation mode remains on even after the device is turned off.</i> | <ul style="list-style-type: none"> <li>• <b>On</b>: the device displays random values. Data is also transmitted to connected 52 mm gauges.</li> <li>• <b>Off</b>: turn off simulation mode</li> </ul>               |

## Unit of measure

Managed units of measure are provided below:

| Data        | Metric | Imperial | Nautical |
|-------------|--------|----------|----------|
| Distance    | km     | mi       | nmi / ft |
| Boat speed  | kmh    | mph      | kn       |
| Wind speed  | kmh    | kn       | kn       |
| Depth       | m      | ft       | ft       |
| Pressure    | bar    | psi      | psi      |
| Fuel        | l      | gal      | gal      |
| Fuel flow   | l/h    | gph      | gph      |
| Temperature | °C     | °F       | °F       |

## Damping

The function makes the displayed values more stable. It is available for wind and compass data.

### Example

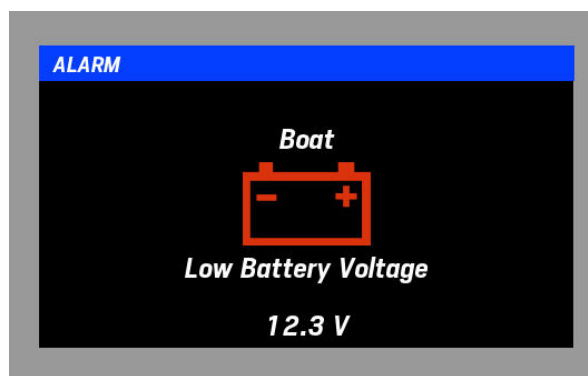
*With medium-strong wind, to prevent the wind speed value from quickly and suddenly changing, set damping to **High** or **Medium**. On the contrary, with slight or no wind, set **No** or **Low** for a reactive indication.*

# Alarm management

## Signal mode

The displayed alarms are read by the NMEA 2000/SAE J1939 network or are processed by the display based on the data received from the network or analog signals. Engine alarms concern all engines on the network.

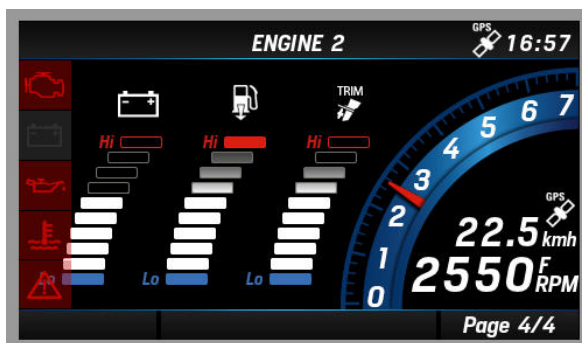
When an alarm is triggered, the **ALARM** page appears and then disappears after the alarm is acknowledged. See "Acknowledge an alarm" on the next page.



All active alarms appear in the **Active alarms** page that is added to the other data pages.

**Note:** an alarm set as disabled is ignored and will not appear in the alarm list. The alarm signal is inhibited during device configuration.

## Signals on data pages

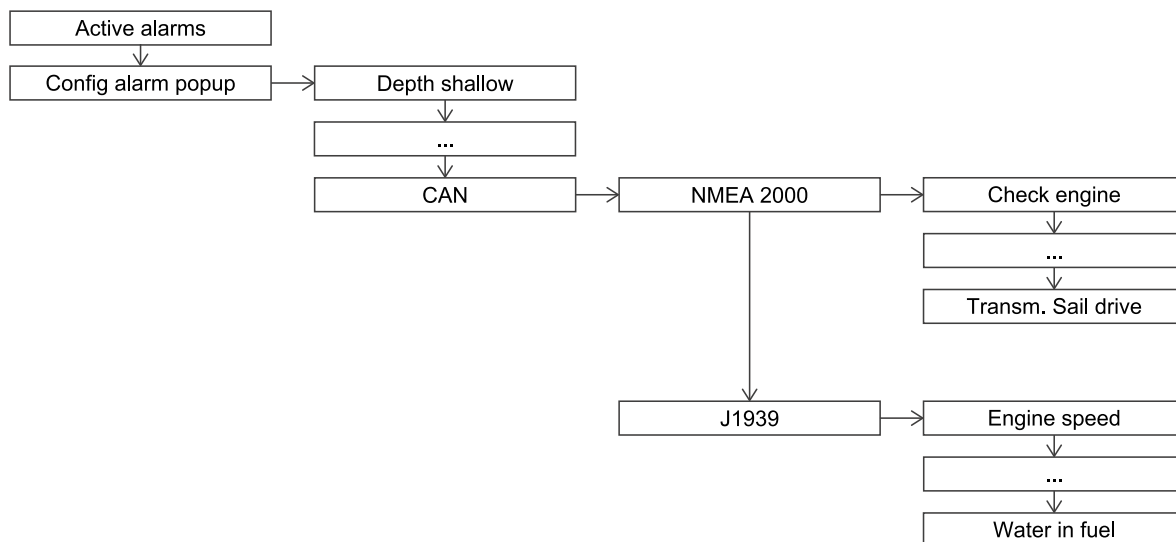


Red icon: alarm. See page **Active alarms**.

- engine alarms
- battery alarms
- oil alarms
- temperature alarms
- generic alarms

## Menu layout ALARMS

**Note\*:** the units of measure depend on parameter **SYSTEM CONFIG > Units**



## Acknowledge an alarm

When an alarm is triggered, the **ALARM** page appears and the buzzer sounds (if connected). What to do:

1. Press any button to acknowledge the alarm and mute the buzzer: the page closes and the alarm is saved on the **Active alarms** page.
2. If, after acknowledging the alarm, the same alarm reappears, the alarm bar appears in the data page and remains visible.

## View the active alarm list

If at least one alarm is active, scroll the data pages or press the **MENU** button and select **ALARMS > Active alarms**: the **Active alarms** page appears.

## Setting alarms from sensors 1

1. Press the **MENU** button and select **ALARMS > Config alarms popup**
2. Select one of the alarms from the sensors
3. Select **No** and select **Yes**: parameters appear
4. If necessary, select and edit the threshold(s) and enable/disable the buzzer.

## Set alarms from NMEA2000/SAE J1939 network

1. Press the **MENU** button and select **ALARMS > Config alarms popup**
2. Select **CAN** and the network: the managed alarm list appears
3. Select one of the alarms from the network
4. If necessary, enable/disable the alarm signal in the **ALARM** window and enable/disable the buzzer.

## Menu description ALARMS

| Alarm               | Description                                                                                                                | Possible values/commands* | Default                                                       |
|---------------------|----------------------------------------------------------------------------------------------------------------------------|---------------------------|---------------------------------------------------------------|
| Depth shallow       | Low water minimum threshold                                                                                                | 0–9.9 m                   | <u>2</u> m, buzzer <b>Yes</b>                                 |
| Depth navigation    | Maximum threshold. For example, a value near the maximum value measurable by the sensor.<br>Safety depth minimum threshold | 0 – 99.9 m<br>0 – 99.9 m  | <u>50</u> m, buzzer <b>No</b><br><u>5</u> m, buzzer <b>No</b> |
| Wind speed          | Wind speed maximum threshold                                                                                               | 0 – 99.9 km/h             | <u>39.9</u> km/h, buzzer <b>No</b>                            |
| Battery voltage     | Battery voltage minimum threshold                                                                                          | 0 – 32.9 V                | <u>10.8</u> V, buzzer <b>Yes</b>                              |
| Engine water temp   | Water temperature maximum threshold                                                                                        | 0 – 139 °C                | <u>110</u> °C, buzzer <b>Yes</b>                              |
| Engine oil temp     | Engine oil temperature maximum threshold                                                                                   | 0 – 149 °C                | <u>120</u> °C, buzzer <b>Yes</b>                              |
| Engine oil pressure | Engine oil pressure minimum threshold                                                                                      | 0 – 99 bar                | <u>0.5</u> bar, buzzer <b>Yes</b>                             |
| Fuel level          | Fuel level minimum threshold                                                                                               | 0 – 99 %                  | <u>20</u> %, buzzer <b>Yes</b>                                |
| Fresh water         | Fresh water minimum threshold                                                                                              | 0 – 99 % m                | <u>20</u> %, buzzer <b>Yes</b>                                |
| Waste water         | Waste water maximum threshold                                                                                              | 0 – 99 %                  | <u>80</u> %, buzzer <b>Yes</b>                                |
| Min RPM             | Engine revolutions minimum threshold. Only values under the threshold will be considered to trigger engine alarms.         | 0 – 999 rpm               | <u>300</u> rpm                                                |
| CAN                 | Alarm access from CAN bus (NMEA 2000 and J1939). See "Managed alarms list" on the next page                                | -                         | -                                                             |

## Managed alarms list

### NMEA2000 - Engine Parameters, Dynamic (PGN 127489)

- Check engine
- Hot engine
- Low oil pres
- Low oil level
- Low fuel pres
- Low voltage
- Low cool level
- Water flow
- Water in fuel
- Charge indicat
- Preheat indic
- Boost pressure
- Over rev
- EGR system
- Main throttle
- Emergency stop
- General warn 1
- General warn 2
- Pwr reduction
- Maintenance
- Eng com error
- Sub throttle
- Neutral prot
- Eng shut down

### NMEA2000 - Transmission Parameters, Dynamic (PGN 127493)

- Check gear
- Gear oil temp
- Gear oil pres
- Gear oil level
- Sail drive

### SAE J1939 - Active Diagnostic Trouble Codes (DM1)

- Water in fuel indication
- Engine speed
- Engine Turbocharger boost pressure
- Exhaust gas temperature
- Engine oil pressure
- Engine Coolant Pressure
- Engine Coolant Temperature
- Engine oil temperature
- Transmission oil temperature
- Transmission oil pressure
- Fuel Level

### Analog input

- Depth Shallow (low)
- Depth Navigation (low/high)
- Wind speed (high)
- Battery (low)
- Engine Water Temperature (high)
- Fuel level (low)
- Fresh water (low)
- Waste Water (high)
- Min RPM (by value)

# Sensor configuration

## Sensor-engine link

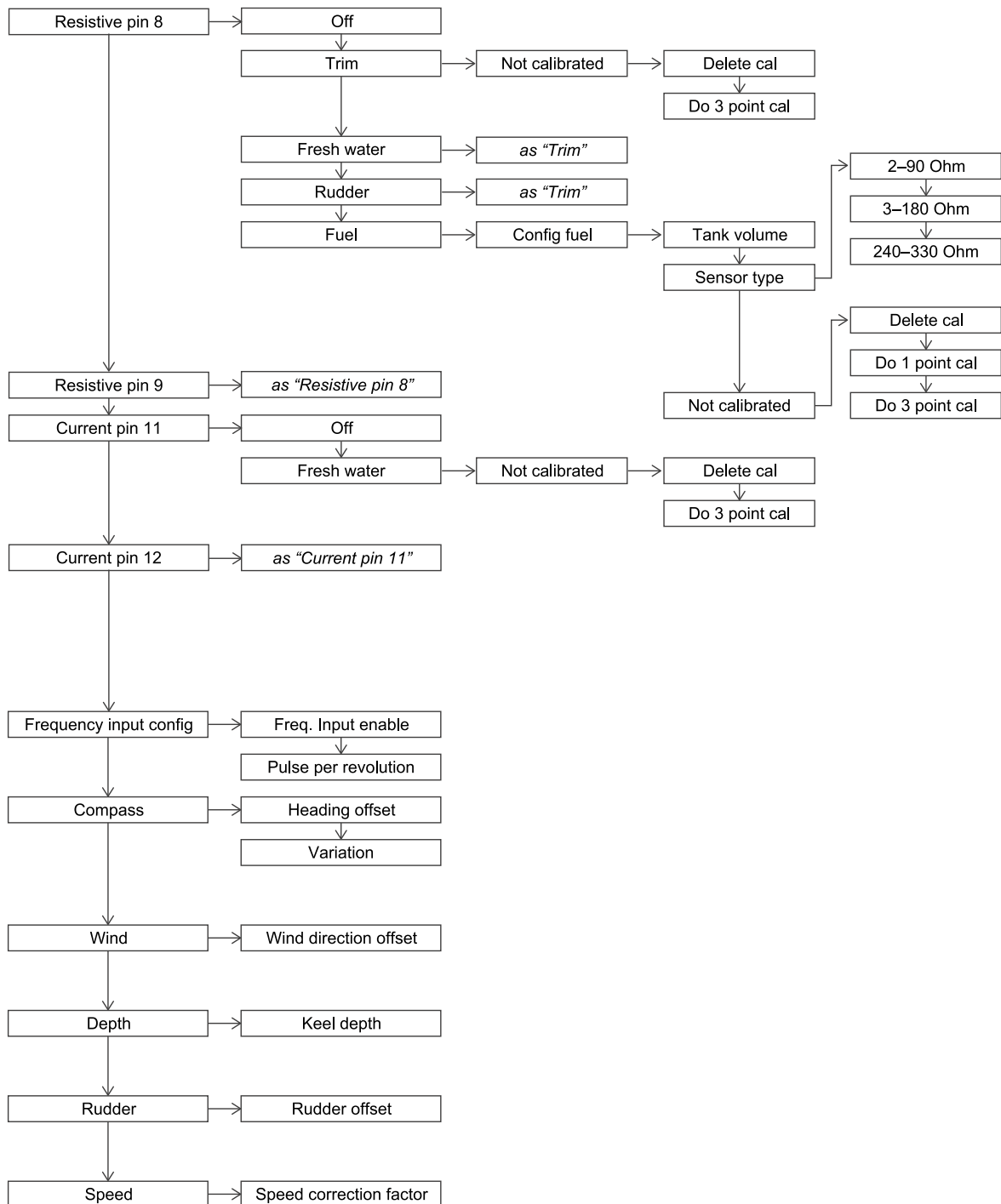
All values read by the sensors concerning engines are linked to the monitored engine before being converted and sent on the NMEA 2000 network. Only sensors connected to display analog inputs can be set and/or calibrated.

## Two identical sensors

If there are two fuel level sensors, they cannot be connected to the two resistive inputs on the same display. The pin signal with higher ID (for example, pin 9) will always prevail over the pin signal with lower ID (pin 8).

## Menu layout SENSOR CONFIG

**Note\*:** the units of measure depend on parameter **SYSTEM CONFIG > Units**



## When to calibrate a sensor

VDO sensors do not require calibration. The display recognizes them and applies default values. Simply declare the type and the sensor starts reading the value with good approximation.

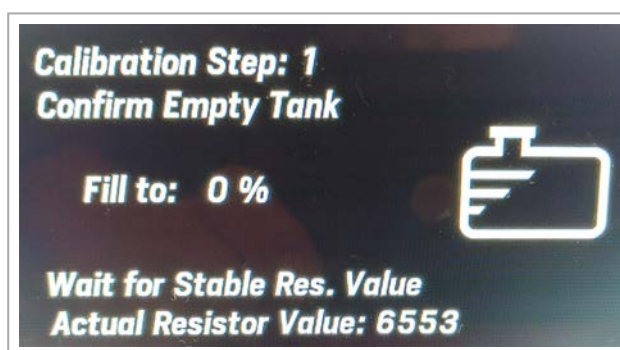
For third party sensors or for more accurate readings, calibrate the sensor. Calibration occurs with subsequent readings (at one, three or up to a maximum of five points) with a wizard.

## Set a sensor without calibrating it

1. Press the **MENU** button and select **SENSOR CONFIG**.
2. Select the input: "Off" appears to indicate that no sensor is linked to the input or was disabled.
3. Select **Off**: sensor types appear
4. Select the sensor type: "Not calibrated" appears. The sensor is enabled but not manually calibrated. To view factory settings, see "Sensor types" on the next page.
5. If you do not want to calibrate, hold down the **MENU** button to return to the last viewed data page.

## Set a sensor and calibrate it

1. Press the **MENU** button and select **SENSOR CONFIG**.
2. Select the input: "Off" appears to indicate that no sensor is linked to the input or was disabled.
3. Select **Off**: sensor types appear
4. Select the sensor type: "Not calibrated" appears. The sensor is enabled but not calibrated.
5. Select **Not calibrated**.
6. Select **Do 3 point cal** (for example): first reading calibration instructions appear. For tanks, they must be drained, wait until the value read stabilizes and confirm by pressing the **ENTER** button.
7. Proceed with all calibration points following the wizard.
8. Hold down the **MENU** button to return to the data pages.



## Delete a calibration

1. Press the **MENU** button and select **SENSOR CONFIG**.
2. Select the input linked to the sensor: the sensor type and calibration status appear.
3. Select the calibration status and select **Delete cal**: any manual calibrations are deleted and factory settings restored.
4. Hold down the **MENU** button to return to the data pages.

## Sensor types

**Note\*:** the underlined value/command is the default value/command. The units of measure depend on parameter **SYSTEM CONFIG > Units**

| Setting                                   | Description                                                                                                                                                  | Possible values/commands*                                                                                                                                                                                                                                                                               |
|-------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Resistive pin 8</b>                    | Input 8 sensor                                                                                                                                               | <ul style="list-style-type: none"> <li>• <u>Off</u>: no connected analog sensor</li> <li>• <b>Trim</b></li> <li>• <b>Fresh water</b>: fresh water level</li> <li>• <b>Rudder</b>: rudder angle</li> <li>• <b>Fuel</b>: fuel level. <b>Sensor type</b>: <b>2-90 Ohm/3-180 Ohm/240-330 Ohm</b></li> </ul> |
| <b>Resistive pin 9</b>                    | Input 9 sensor                                                                                                                                               | Calibration <b>Fuel</b> : at one and at three points. Calibration for all others: at three points.                                                                                                                                                                                                      |
| <b>Current pin 11</b>                     | Input 11 sensor                                                                                                                                              | <ul style="list-style-type: none"> <li>• <u>Off</u>: no connected analog sensor</li> <li>• <b>Fresh water</b>: fresh water level</li> </ul>                                                                                                                                                             |
| <b>Current pin 12</b>                     | Input 12 sensor                                                                                                                                              | <ul style="list-style-type: none"> <li>• <b>Waste water</b>: waste water level</li> </ul> Three point calibration.                                                                                                                                                                                      |
| <b>Frequency input config</b>             | Impulses per engine revolution. If enabled, engine revolutions are read by the analog sensor in frequency. See "Calculate engine revolution impulses" below. | <u>Off</u> / On<br>0.0 – 655.32 ( <u>1.0</u> )                                                                                                                                                                                                                                                          |
| <b>Compass &gt; Heading offset</b>        | Alignment between compass bow and boat bow.                                                                                                                  | ±0.0 – 999 ° ( <u>0</u> °)                                                                                                                                                                                                                                                                              |
| <b>Compass &gt; Variation</b>             | Alignment between the magnetic North and true North.                                                                                                         | ±0.0 – 999 ° ( <u>0</u> °)                                                                                                                                                                                                                                                                              |
| <b>Wind &gt; Wind direction offset</b>    | Alignment between the wind sensor position and longitudinal boat axis.                                                                                       | ±0 – 999 ° ( <u>0</u> °)                                                                                                                                                                                                                                                                                |
| <b>Depth &gt; Keel depth</b>              | Distance between the transducer and keel to calculate free water                                                                                             | 0 – 9 m ( <u>2</u> °)                                                                                                                                                                                                                                                                                   |
| <b>Rudder &gt; Rudder offset</b>          | Alignment between the sensor center and counter-rudder blade.                                                                                                | ±0 – 999 ° ( <u>0</u> °)                                                                                                                                                                                                                                                                                |
| <b>Speed &gt; Speed correction factor</b> | Alignment between the sensor Speed through water (STW) and real boat speed. See "Calculate the speed offset factor" below                                    | 0 – 199.99 ° ( <u>1.00</u> °)                                                                                                                                                                                                                                                                           |

## Calculate engine revolution impulses

The analog sensor connected to the engine sends signals in frequency (0-4kHz). Each impulse corresponds to one or more engine revolutions. In order to calculate rpm, set the impulse/engine revolution ratio.

**Note:** only as an example. Simply divide the number of cylinders by two in four-cylinder engines. For example, a four-cylinder engine sends two impulses per revolution.

## Calculate the speed offset factor

The speed offset factor lets you align the displayed speed to the actual speed. The offset factor is helpful when navigating at low speed. In this case, the value displayed by the sensor is higher than the

real one since calculated with GPS ground references. The offset factor thus reduces the displayed speed data.

#### Example

*If the displayed speed is 5 kn and actual speed is 6 kn, then the calculation to obtain the offset factor will be:*

$$6/5 = 1.20$$

# MediaBox use

## Operations

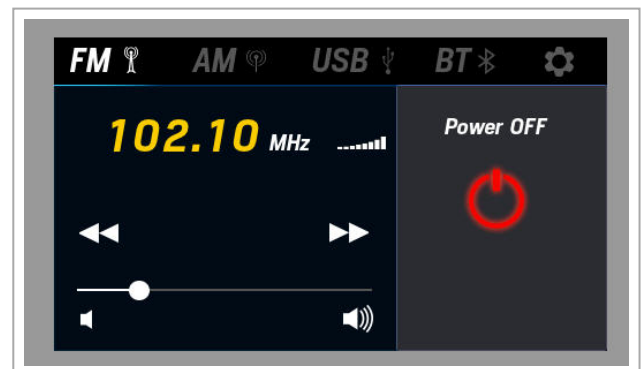
MediaBox can be controlled by OceanLink Master 4.3" TFT display or the VDO MediaBox app available for Apple and Android devices in their stores. The app lets you remotely control MediaBox. It can control the following sources:

- FM stations
- AM stations
- playlists from USB key
- audio files from Bluetooth devices

Once connected to the NMEA 2000 network, MediaBox remains in stand-by, awaiting communications from the display or app.

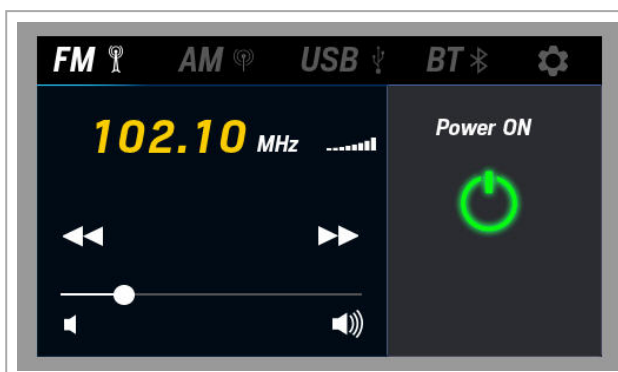
## On/Off

1. The "MediaBox not powered" message appears the first time the display is turned on: the display is connected to MediaBox but the media player is off.
2. Press the **ENTER** button: the main page appears with the **Power OFF** red symbol.



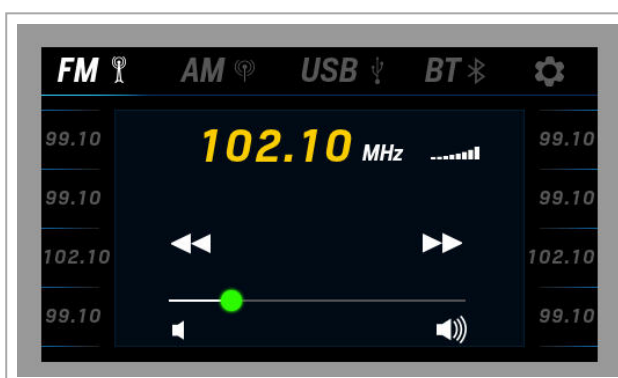
3. Press the **ENTER** button again: MediaBox turns on.
4. Press the **ENTER** button again: MediaBox turns off.

**Note:** if the USB and BT sources are not connected, their menus are disabled.



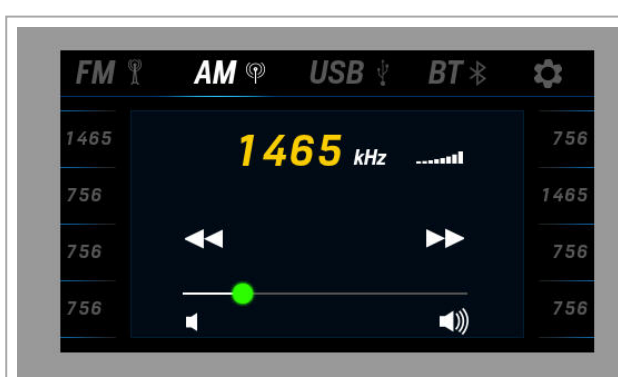
## Listen/set FM stations

1. Repeatedly press the **MENU** button until positioned on the menu bar. Scroll and highlight the **FM** source.
2. Scroll and use the **ENTER** button to select the various commands or a saved station.
3. To set a station, once you have selected the frequency, move to a free station and hold down the **ENTER** button.



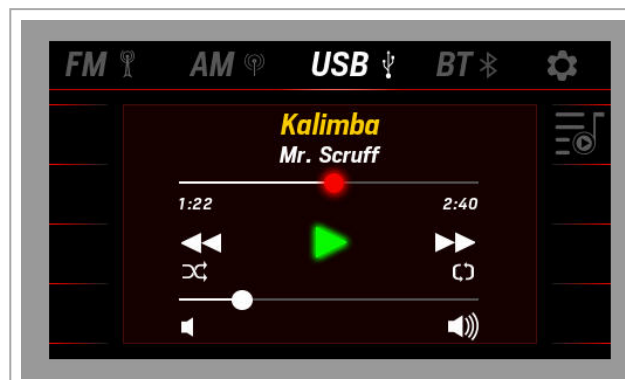
## Listen/set AM stations

1. Repeatedly press the **MENU** button until positioned on the menu bar. Scroll and highlight the **AM** source.
2. Scroll and use the **ENTER** button to select the various commands or a saved station.
3. To set a station, once you have selected the frequency, move to a free station and hold down the **ENTER** button.



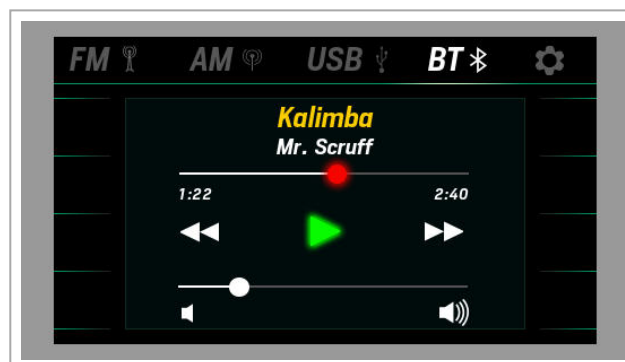
## Listen to a playlist from USB key

1. Insert the USB key with the playlist.
2. Repeatedly press the **MENU** button until positioned on the menu bar. Scroll and highlight the **USB** source.
3. Scroll and use the **ENTER** button to select the various commands.
4. To select a track, select the playlist: the track list appears.



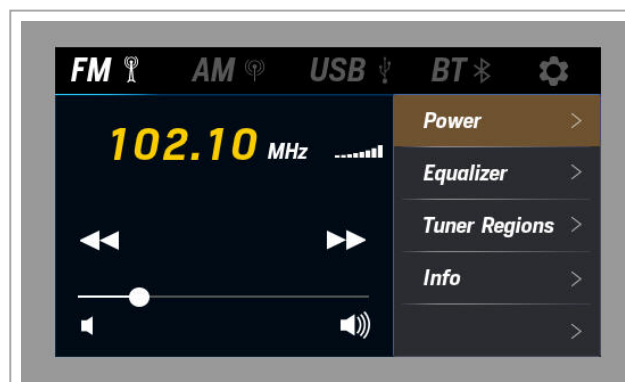
## Listen to tracks from cell phone

1. Link MediaBox to a cell phone via Bluetooth.
2. Repeatedly press the **MENU** button until positioned on the menu bar. Scroll and highlight the **BT** source.
3. Scroll and use the **ENTER** button to select the various commands.



## Set MediaBox operations

1. Repeatedly press the **MENU** button until positioned on the menu bar. Scroll and select **⚙** by pressing the **ENTER** button.
2. To adjust the volume, scroll and select **Equalizer**.
3. To obtain the correct frequencies for the geographical area, select **Tuner region**.
4. To obtain information on the media player, select **Info**.



## Add a MediaBox page

The page to control the media player is added after those already included.

1. Press the **MENU** button and select **SCREEN CONFIG**.
2. Scroll until you see an empty page ("**NO SCREEN**") and select it.
3. Scroll and select the page layout **RADIO**: the layout opens.
4. Repeatedly press the **MENU** button to exit the menu and save settings.

## Reset MediaBox

To restore factory settings:

1. Press the **MENU** button and select **SYSTEM CONFIG**.
2. Select **Reset > Reset MediaBox**.

# Troubleshooting

## Display problems

| Problem                                               | Cause                                                  | Solution                                                                                        |
|-------------------------------------------------------|--------------------------------------------------------|-------------------------------------------------------------------------------------------------|
| The displayed values are not those expected           | Incorrect sensor configuration                         |                                                                                                 |
|                                                       | Incorrectly connected sensor                           | Check the connection, see installation instructions                                             |
|                                                       | The NMEA 2000 network backbone was incorrectly created | Check connections and make sure there is a termination at the beginning and end of the backbone |
| "–" and not the expected value appears on the display | Data not available on the network                      | Wait                                                                                            |
|                                                       | Sensor not connected                                   | Connect the sensor, see installation instructions                                               |
|                                                       | The NMEA 2000 network backbone was incorrectly created | Check connections and make sure there is a termination at the beginning and end of the backbone |
| "Invalid value"                                       | The sensor to be calibrated is faulty or disconnected  | Check or replace the sensor                                                                     |
| "No media player connected"                           | MediaBox is not connected to the NMEA 2000 network.    | Check connections                                                                               |
| "Media player not powered"                            | MediaBox is connected but off.                         | Turn on MediaBox, see "Introduction" on page 3.                                                 |

## Problems on connected 52 mm gauges

| Problem                                                | Cause                                           | Solution                                                    |
|--------------------------------------------------------|-------------------------------------------------|-------------------------------------------------------------|
| The gauge is backlit but the pointer does not move     | Data not received from master                   | Check whether the 52 mm gauge is compatible with the master |
| The pointer does not move and the gauge is not backlit | Master not powered                              | Check master connections<br>Connect the power supply        |
|                                                        | No 52 mm chain gauge is connected to the master | Connect a 52 mm gauge to the master                         |

# Technical specifications

## General features

|                  |                                                                                                                                                                                                                            |
|------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Material         | Aluminum and glass screen                                                                                                                                                                                                  |
| Connectors       | <ul style="list-style-type: none"><li>• Molex MX150</li><li>• NMEA 2000 Micro-C M12</li><li>• EasyLink</li></ul>                                                                                                           |
| Input data       | <ul style="list-style-type: none"><li>• via CAN bus (NMEA 2000 and SAE J1939)</li><li>• 2 capacitive analog inputs (4-20 mA)</li><li>• 2 resistive analog inputs (0–400 Ω)</li><li>• 1 frequency input (0-4 kHz)</li></ul> |
| Output data      | <ul style="list-style-type: none"><li>• NMEA 2000</li><li>• EasyLink (VDO proprietary protocol) to 52 mm gauges</li><li>• output alarm (500 mA)</li></ul>                                                                  |
| Protection grade | IPX6                                                                                                                                                                                                                       |
| Display          | TFT 4.3"                                                                                                                                                                                                                   |
| 52 mm gauges     | Maximum 16                                                                                                                                                                                                                 |

## Environmental specifications

|                     |                    |
|---------------------|--------------------|
| Working temperature | From -20 to +70 °C |
| Storage temperature | From -40 to +85 °C |

## Electrical specifications

|                   |                 |
|-------------------|-----------------|
| Rated voltage     | 12 / 24 V       |
| Voltage tolerance | 8-28 V          |
| Working current   | < 300 mA @ 12 V |
| Absorption (LEN)  | 2               |

## Conformity

|                     |                                                                                                                                                                         |
|---------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Conformity          |   |
| Directives          | 2014/30/EU (Electromagnetic compatibility)<br>2011/65/EU (Electrical-electronic equipment hazardous substances)                                                         |
| Reference standards | IEC 60945: 2002-08 (environmental class: exposed)                                                                                                                       |

# Spare parts, sensors and accessories

## Available spare parts

| Product                            | Part number |
|------------------------------------|-------------|
| Pigtail cable with MX150 connector | A2C15078700 |
| White bezel                        | A2C11529800 |
| Black bezel                        | A2C10832300 |
| Sun cover                          | A2C99745000 |
| EasyLine extension cable           | A2C59500139 |

## Available analog sensors

| Data type                    | Sensor type     | Part number                                                  |
|------------------------------|-----------------|--------------------------------------------------------------|
| Trim<br>(Trim)               | 10-167 $\Omega$ | -                                                            |
| Fresh water level<br>(Fresh) | 3-180 $\Omega$  | 226-828-001-001K                                             |
| Fuel level<br>(Fuel)         | 3-180 $\Omega$  | 226-801-015-001G, 226-801-015-001C, A2C59510162, A2C59510168 |
|                              | 240-33 $\Omega$ | A2C59510166, A2C59510172, A2C1364580001                      |
| Rudder angle<br>(Rudder)     | 10-180 $\Omega$ | A2C1102950001                                                |
|                              | 5-90 $\Omega$   | A2C1102960001                                                |

## Available accessories

To view available accessories, visit [www.marine.vdo.com](http://www.marine.vdo.com).

# Appendix

## Supported NMEA 2000 messages

| PGN    | Description                                 | PGN    | Description                             |
|--------|---------------------------------------------|--------|-----------------------------------------|
| 65030  | J1939 Generator Average Basic AC Quantities | 129283 | Cross track error                       |
| 65226  | J1939 Diagnostic Message #1                 | 129284 | Navigation data                         |
| 65227  | J1939 Diagnostic Message #2                 | 129285 | Navigation route and waypoint info      |
| 65228  | J1939 Diagnostic Message #3                 | 129539 | GNSS dilution of precision (DOP)        |
| 65229  | J1939 Diagnostic Message #4                 | 129540 | GNSS satellites in view                 |
| 65230  | J1939 Diagnostic Message #5                 | 130306 | Wind data                               |
| 65231  | J1939 Diagnostic Message #6                 | 130310 | Environmental parameters                |
| 65232  | J1939 Diagnostic Message #8                 | 130311 | Environmental parameters                |
| 65234  | J1939 Diagnostic Message #10                | 130312 | Temperature                             |
| 65235  | J1939 Diagnostic Message #11                | 130313 | Humidity                                |
| 65236  | J1939 Diagnostic Message #12                | 130314 | Actual Pressure                         |
| 126992 | System time                                 | 130316 | Temperature, Extended Range             |
| 127245 | Rudder                                      | 130569 | Entertainment - Current File and Status |
| 127250 | Vessel heading                              | 130570 | Entertainment - Library Data File       |
| 127251 | Rate of Turn                                | 130571 | Entertainment - Library Data Group      |
| 127257 | Attitude                                    | 130572 | Entertainment - Library Data Search     |
| 127258 | Temperature (Old Version)                   | 130573 | Entertainment - Supported Source Data   |
| 127488 | Engine Parameters, Rapid Update             | 130574 | Entertainment - Supported Zone Data     |
| 127489 | Engine Parameters, Dynamic                  | 130576 | Small Craft Status                      |
| 127498 | Engine Parameters, Static                   | 126992 | System time                             |
| 127505 | Fluid level                                 | 127488 | Engine Parameters, Rapid Update         |
| 127508 | Battery status                              | 127489 | Engine Parameters, Dynamic              |
| 128259 | Speed: Water referenced                     | 127493 | Transmission Parameters, Dynamic        |
| 128267 | Water depth                                 | 127498 | Engine Parameters, Static               |
| 129025 | Position: Rapid update                      | 127505 | Fluid Level                             |
| 129026 | COG and SOG: Rapid update                   | 127508 | Battery Status                          |
| 129029 | GNSS position data                          | 128267 | Water Depth                             |
| 129033 | Local Time Offset                           | 130316 | Temperature, Extended Range             |
| 129044 | Datum                                       |        |                                         |

## Supported SAE J1939 messages

| PGN   | SPN  | Description                               |
|-------|------|-------------------------------------------|
| 61444 | 190  | Engine Speed                              |
| 61443 | 92   | Engine Percent Load                       |
| 61443 | 92   | Engine Percent Load at Current Speed      |
| 61444 | 513  | Actual Engine - Percent Torque            |
| 61445 | 523  | Transmission Current Gear                 |
| 65030 | -    | Generator Average Current                 |
| 65030 | -    | Generator Average Frequency               |
| 65030 | -    | Generator Average Line to Neutral Voltage |
| 65030 | -    | Generator Average Line to Line Voltage    |
| 65176 | 1180 | Exhaust Temperature                       |
| 65214 | 189  | Engine Rated Speed                        |
| 65242 | 234  | Software Identification                   |
| 65253 | 247  | Engine Total Hours of Operation           |
| 65260 | 237  | Vehicle Identification Number             |
| 65262 | 110  | Engine Coolant Temperature                |
| 65262 | 175  | Engine Oil Temperature 1                  |

| PGN   | SPN | Description                           |
|-------|-----|---------------------------------------|
| 65263 | 100 | Engine Oil Pressure                   |
| 65263 | 109 | Engine Coolant Pressure               |
| 65263 | 94  | Engine Fuel Delivery Pressure         |
| 65263 | 109 | Engine Coolant Pressure               |
| 65265 | -   | Vehicle Speed                         |
| 65266 | 184 | Fuel Economy                          |
| 65266 | 183 | Engine Fuel Rate                      |
| 65270 | 102 | Engine Turbocharger Boost Pressure    |
| 65271 | 158 | Battery Potential (Voltage), Switched |
| 65271 | 167 | Charging System Potential (Voltage)   |
| 65272 | 177 | Transmission Oil Temperature          |
| 65272 | 127 | Transmission Oil Pressure             |
| 65276 | 96  | Fuel Consumption                      |



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