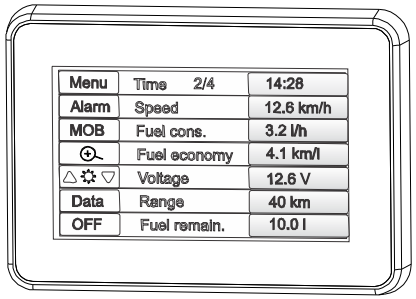
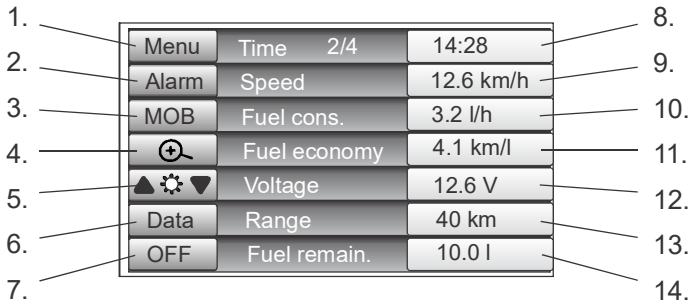
Flowtrecs Wave

Multifunctional fuel computer (Fuel sensor included)



Operation manual



8. Time according to GPS.
9. Speed by GPS
10. Instantaneous fuel consumption
11. Economics of fuel consumption, i.e. the distance traveled per 1 liter of fuel
12. Field no. 5, e.g. the quantity selected in the Menu (it can be voltage, range, speed)
13. Field No. 6, e.g. the quantity selected in the Menu (it can be voltage, range, speed)
14. Amount of fuel

1.Description of the device

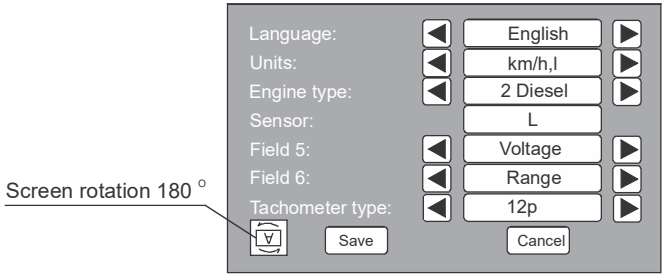
Flowtrecs Wave is a measuring device indicating the most important operational parameters of land, water and air vehicles equipped with petrol and diesel engines, i.e. diesel engines. The applications are wide and include, among others, motor boats and yachts, light planes, paragliders, motorcycles, power generators, oil burners, etc.
The indicated parameters can be classified into 2 groups. These are current parameters such as fuel consumption, economy of consumption, rotational speed, movement speed, battery voltage and statistical parameters such as average fuel consumption, average speed etc. There are also several additional functions available, such as anchor alarm and MOB, e.g. man overboard.
It comes in many configurations allowing its use in most potential applications, for one engine, for 2 engines, for power from 20 to 500HP.
It is equipped with a bright glass touch screen ensuring good readability of indications in sunlight and reliable and durable measuring sensors made of aluminum alloys with a rotor mounted in sapphire bearings. The housing is fully waterproof IP68 which allows it to work in virtually any weather conditions.

2.Description of the main screen

1. Menu - selection of measured quantities, fuel type, engine size, etc.
2. Alarm - setting the anchor alarm
3. MOB - Men Over Board that is saving the current position
4. ZOOM - a composite screen, e.g. a screen with several selected parameters
5. Adjust screen brightness
6. Data - screen displaying recorded values of measured quantities
7. Turn off the screen

3. Menu

1. Language selection - with the help of directional arrows next to the check box you can set one of 3 languages: English, German, Polish
2. Selection of units - using the directional arrows as above. you can choose the measurement units, e.g. km, l, Nm, gal
3. Selection of engine type - using directional arrows as above. you can choose the type of engine: 1x gasoline, 2x gasoline, 1x diesel, 2x diesel
4. Selection of the sensor size - using the direction arrows as above. you can choose the size of the sensor: S - 20-60KM, M - 60-130KM, L - 130-250KM, C - non-standard size
5. Selection of the value displayed in field 5 of the main screen: RPM, voltage, range
6. Selection of the value displayed in field 6 of the main screen: RPM, voltage, range



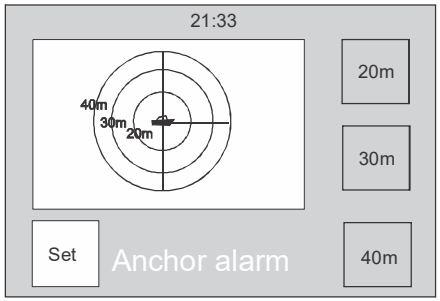
7. Selection of tachometer type - possible are following settings 2p, 4p, 6p, 8p, 10p, 12p. Using this values, you can set right RPM dividing scale allowing correct RPM readings.

If you need to rotate the screen 180 relative to the housing, you can do it using the button at the bottom left of the screen. The change is only active when the screen is switched on again.

Saving changes in the settings is done by the Save button and back without saving by the Cancel button.

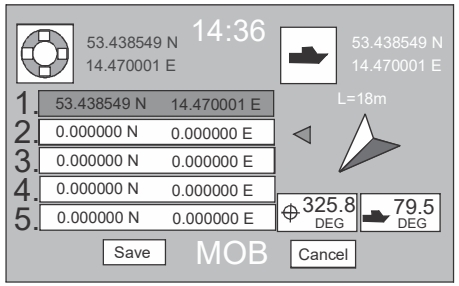
4. Anchor alarm

Selecting this function allows you to set the anchor alarm at a distance of 20, 30 or 40 meters. It works in such a way that the distance of the boat from the place where the alarm is triggered, at a distance greater than the selected one is signaled by an audible alarm. This avoids uncontrolled drifting caused by e.g. wind, river current or water ripples.



5. MOB function

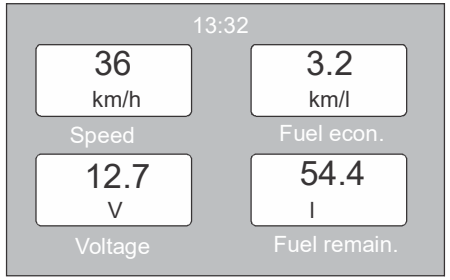
MOB or so-called Man Over Board is a function that records the geographical position of a device, when you press the MOB button. The following screen will then be shown:



It has a lifebuoy symbol with the position (shown in red) next to it when the MOB button is pressed and 5 fields in which 5 different positions can be saved. To save a given position, touch one of the five fields in which it is to be saved. This field will turn yellow and then the Save button will save the position.
The current position of the boat is indicated on the top right.
After saving the position, you can return to it by following the arrows, red and green, and the compass needle symbol between the arrows. To activate the function of returning to a saved position, highlight that position by touching a specific field of the saved position with your finger and hold for 3 seconds lifebuoy symbol. Then the directional arrows will show in which direction you should move to reach the saved position. Above the arrows is the distance to this position visible and below the angle at which to go (window with the crosshair symbol) and the current angle of movement of the boat (window with the boat symbol). The accuracy of the guidance depends on the accuracy of the position with GPS and is about a few meters.

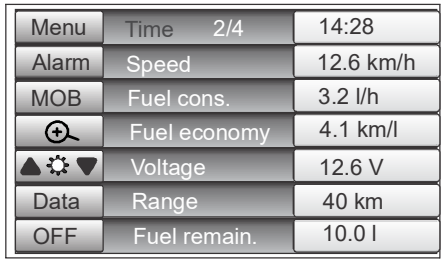
6. Zoom function

This function allows you to display several selected parameters (max. 4) on a separate screen with an increased character size ensuring better readability. These parameters are selected by touching the name of this parameter on the main screen. The parameter name then turns green. Return to the main screen after touching any of the visible fields.



This function also allows you to display detailed parameters related to time and fuel consumption. This happens when only one of the inscriptions on the main screen is highlighted in green:
a. Time
b. Fuel consumption

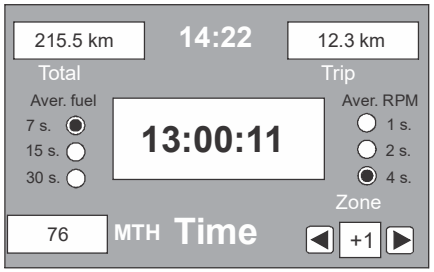
In the first case, when only the text Time is highlighted on the screen and button Zoom istouched , the Time screen will be displayed, showing the current time, the total distance traveled since the program was started, and the distance traveled since the last start.



Both indications are cleared by holding the window for a few seconds. The window at the bottom labeled MTH indicates the number of engine operating hours. Marked Zone on the right side, time zone correction is available. By changing the correction value to the left or right, you can adjust the time to the local time zone. The round buttons visible on the sides allow you to choose the time constant of averaging measurements for RPM and flow (Flow).

Return to the main screen by clicking on the window displaying the time.

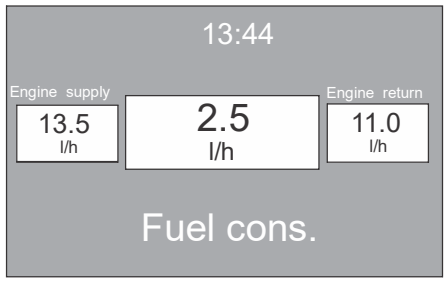
TIME screen



In the second case, when only the Fuel Consumption text is illuminated on the screen and button Zoom is touched, the fuel consumption screen will be displayed, showing the amount of consumption measured by individual sensors. For single fuel return (diesel) engine this is the following screen:

On the sides there are visible flows measured by sensors located in the fuel supply line and in the fuel return line. In the middle, the resultant value, e.g. the difference between the measured values.

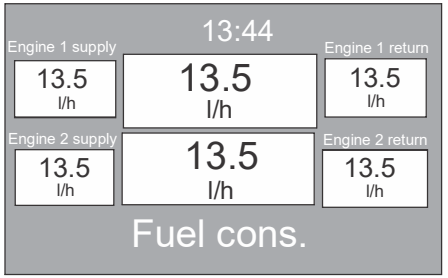
Example of consumption screen for one diesel engine



For two gasoline engines (without fuel return) the picture is similar. On the sides there are visible flows measured by the sensors of both engines, while in the middle the total amount of both sensors together.

In the case of two diesel engines, the sides show the flows measured by sensors located in the fuel supply lines and in the fuel return lines. In the middle, the resultant amount, e.g. the difference between the measured values. In the top row, these are the values for the first engine, while in the second, for the second engine. This allows to view fuel consumption for each engine separately.

Example of consumption screen for two diesel engines

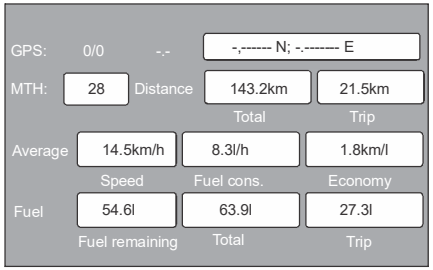


7. Adjusting the screen brightness

The up and down arrows allow you to adjust the screen brightness to meet your needs. Left arrow is lowering and right is increasing the brightness.

8.Data function

The Data function presents a set of the most important information regarding current and previously recorded measurement data. Those are:
a. Number of GPS satellites observed
b. Current time by GPS
c. Geographic position
d. Number of MTH hours
e. Distance covered (total mileage in km)
f. Current odometer
g. Average: speed, fuel consumption, economy
h. Fuel: amount in tank, total amount of fuel consumed, amount recently used



The indications visible in the fields can be reset by touching and holding the selected field for a few seconds. From this moment, the counting of data for this field starts again.

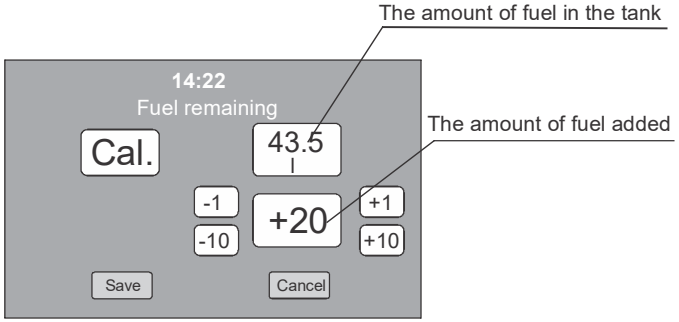
8.Button OFF

This button is used to turn off the screen. Turning off cuts power to all electrical circuits of the device, except for the so-called GPS backup, enabling quick GPS start.
To turn on the screen, touch and hold the screen for a few seconds with your finger.

9.Fuel remaining

After clicking on the window for indicating the amount of fuel (right of the inscription "Fuel remaining") a screen showing the amount of fuel remaining in the tank appears. This value is a subtraction of fuel used measured by the sensor from the amount of tanked fuel.

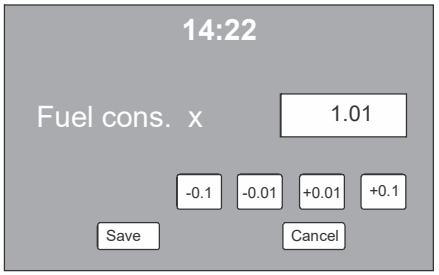
IThe amount of fuel tanked into the tank is entered using the buttons -1, -10, +1, +10. Every touching the button changes the amount of fuel added by the number visible on the button, e.g. by pressing the "+10" button 3x successively, 30l of fuel will be added. This is indicated in the "Amount of fuel added" window, located below the "Amount of fuel in the tank" window. If you accidentally add too much, use the negative buttons to decrease the amount of fuel added so that it matches the actual amount of fuel added. After saving this using the "Save" button, the amount of fuel in the tank is increased by the amount of fuel added and saved in the device's memory. If you do not want to change the amount of fuel in the tank, press the "Cancel" button to return to the main screen. Attention. If the amount of fuel in the tank is less than 10l, a yellow dispenser-shaped icon is displayed when starting the device, reminding low fuel level in the tank.



10.Calibration

Calibration is an operation that can be performed in the event of significant discrepancies between the consumption indications and actual fuel consumption. The flowmeters are pre-calibrated at the factory, but sometimes it may be necessary to recalibrate in a particular fuel system and specific engine type. The whole operation consists in setting a new value of the coefficient through which the fuel consumption indications are corrected.
If, for example, it turns out that the fuel consumption indications are understated by 10%, the calibration factor should be increased by 10%.

After selecting the "Fuel quantity" screen, hold down the "Cal." for min. 5 seconds to activate the "Fuel consumption x" adjustment screen. The factory-set calibration factor is shown on this screen, e.g. 1.01. Now, using the buttons described -0.1, -0.01, +0.01, +0.1, increase the value of the visible factor by 10% and thus set the value 1.11. This can be done 10x by pressing the +0.01 field or 1x +0.1 field. To save the new settings in the device memory, press the "Save" button. Any time leave the size unchanged and return to the main screen, use the "Cancel" button.



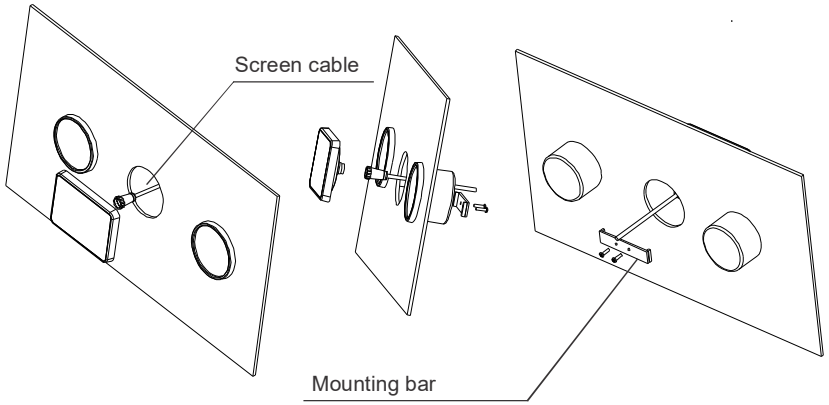
11. Installation.

1. Route the extension cable between the desktop on which the screen will be installed and the engine compartment in which the sensor will be mounted.

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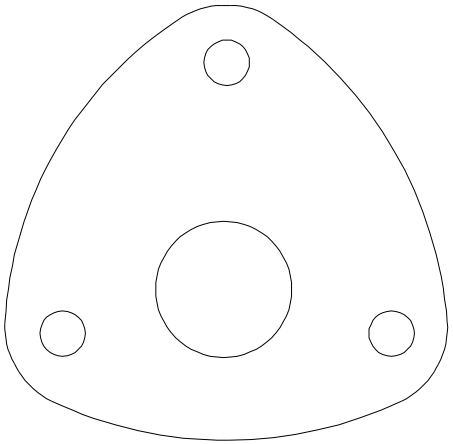
2. Install the flow sensor on the fuel line, remembering that it should be located away from hot engine parts, and that it should not be exposed to excessive vibration caused by a running engine. In addition, the sensor should be located above the fuel tank to prevent fuel leaks if the fuel lines are unsealed. After cutting the fuel line between the fuel filter and the engine, slide its ends onto the fuel sensor connectors, paying attention to the compliance of the direction of fuel flow with the direction of the arrows on the sensor housing and secure with bands against slipping. Then insert the socket from the extension cable into the plug on the sensor cable and fix the sensor together with the cables in a horizontal position, i.e. so that the fuel lines go horizontally and the inscription Top Side is visible on the top surface of the sensor also lying horizontally. When installing the sensor on the fuel return, you should also follow the same rules.
After connecting the sensor, check the tightness of the fuel lines.
3. Mount the screen on the desktop with a cable connected to the sensor junction box located under the desktop.
4. Connect the extension plug from the sensor to the sensor socket (S1) coming out of the box. When connecting several sensors, pay attention to the compatibility of the connections with the description for the correct version of the device, as in the drawings attached.
5. Connect the green wire (RPM 1) coming out of the box to the existing RPM tachometer or stop according to. Fig. Note. No RPM limiter is needed for injection engines and the RPM cable can be connected directly to the tachometer or RPM pulses from the handle
6. Connect the 12VDC power supply to the cable coming out of the box marked 12VDC:
Brown wire:
a. to the place where + 12V (Ignition) appears after turning the ignition key. The disadvantage of this solution is the extended GPS start after switching off the ignition
b. to the place where + 12VDC voltage is permanently available and only the main switch is breaking power to the device. This solution speeds up GPS start at startup.
Blue - to ground (GND)
After connecting the power supply properly, the screen should turn on automatically.

An example of flush mounting on the desktop

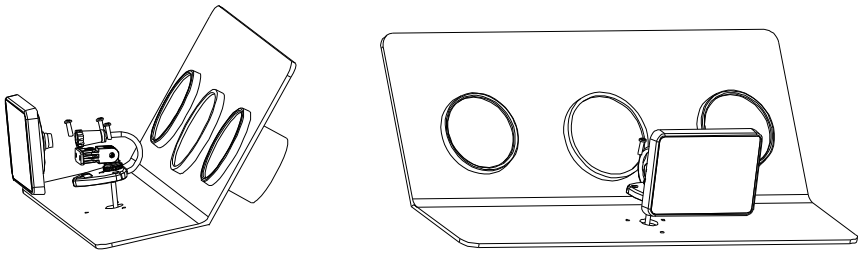


For recessed mounting in the desktop, cut a round hole in the desktop with a diameter of 80-85mm, hide the sensor junction box under the desktop and release the cable with the plug into the screen, screw the plug to the screen, put the screen on the cut-out hole and tighten the mounting bar on the back . If tightness of assembly is necessary, before mounting the screen, put a layer of sealing silicone on the desktop around the notch and only then tighten the fixing screws.

Template with the spacing of the desktop bracket holes

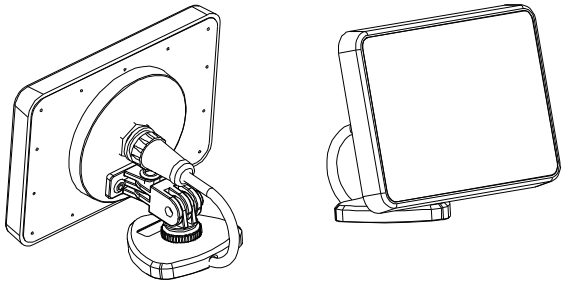


Example of desktop mounting using the bracket (option)



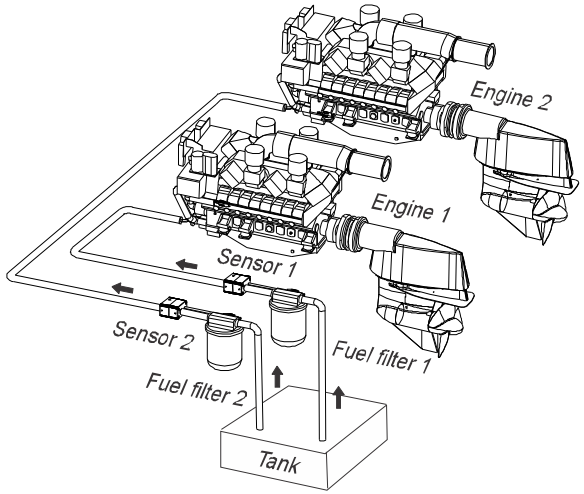
When mounting on a desktop using a bracket, cut holes in the desktop according to enclosed template, put the sensor junction box under the desktop and let the cable with the plug out to the outside, screw the plug to the screen and the screen to the holder, then put the holder on the cut out hole and tighten the mounting foot on the front or back. If tightness of assembly is necessary, before attaching the foot, put a layer of sealing silicone on the desktop around the notch and only then tighten the fixing screws. From the top, the handle foot can be screwed with metal screws, while from below, M4 screws screwed into the handle foot.

View of the screen attached to the bracket



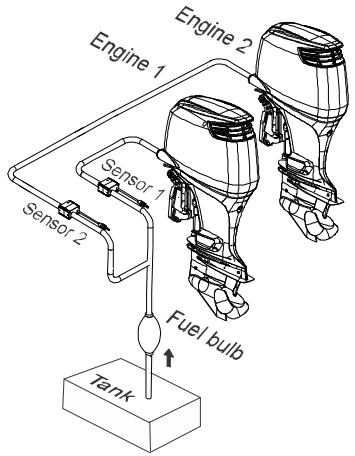
The angle of inclination of the screen in 2 planes can be changed after loosening the handle screws, while loosening the ring at the foot of the handle, you can rotate the handle relative to the foot.

Installation example for 2 stationary gasoline engines (without fuel return)



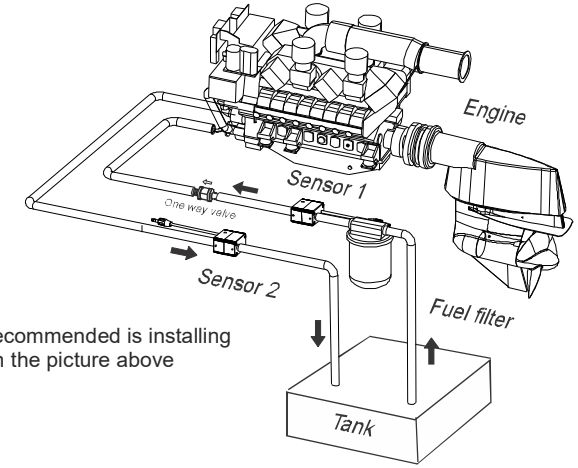
Flowtrecs Wave Operation manual

Installation example for 2 outboards engines



Flowtrecs Wave Operation manual

Installation example for 1 diesel stationary engine (with fuel return)

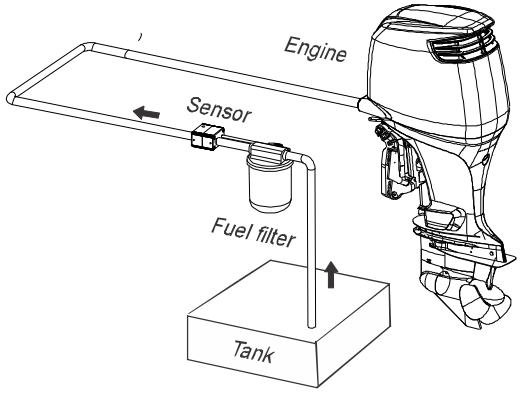


Important notice:

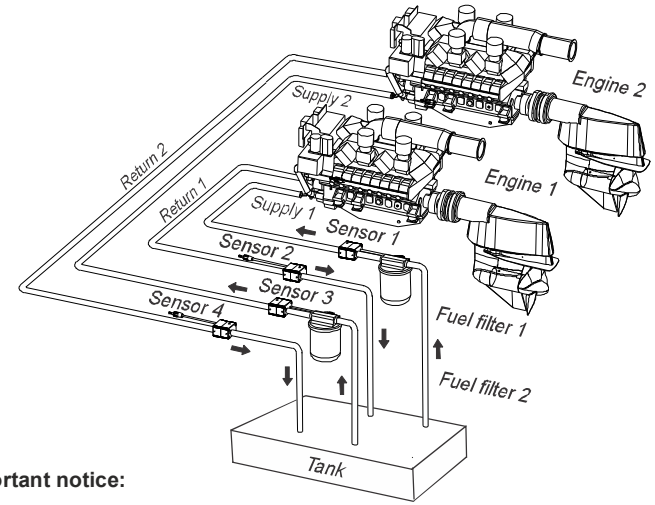
for diesel engines recommended is installing one way valve as on the picture above

Flowtrecs Wave Operation manual

Installation example for 1 outboard engine

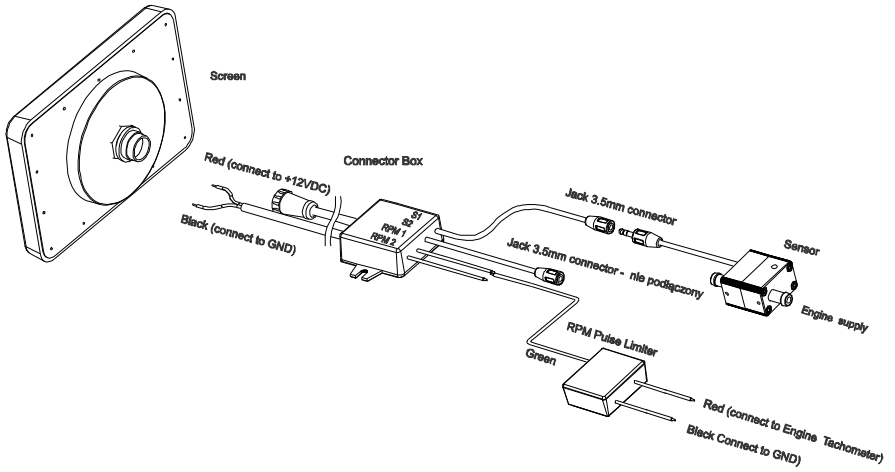


Installation example for 2 diesel stationary engines (with fuel return)



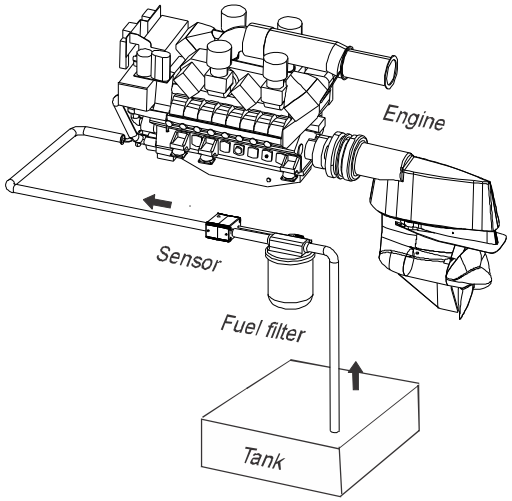
Important notice:

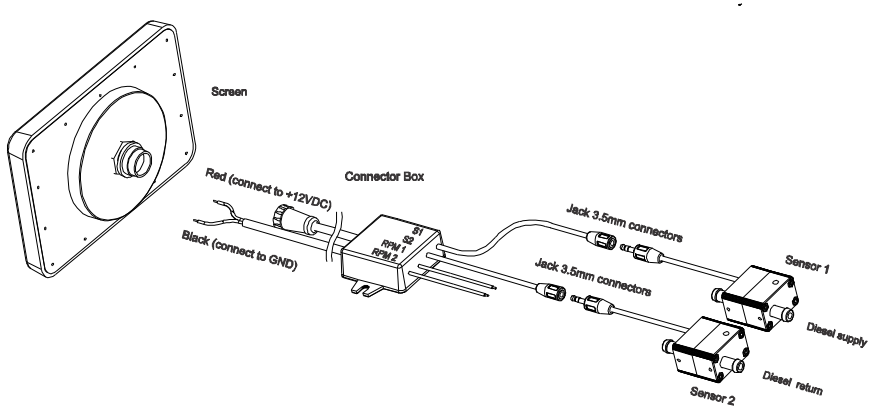
for diesel engines recommended is installing one way valve as on one diesel example



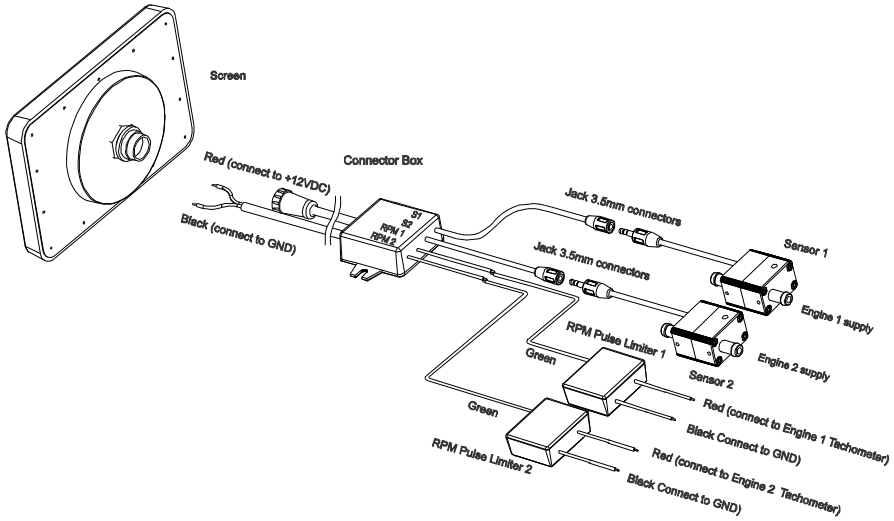
Connections for single petrol engine (without return)

Installation example for 1 stationary gasoline engine (without fuel return)

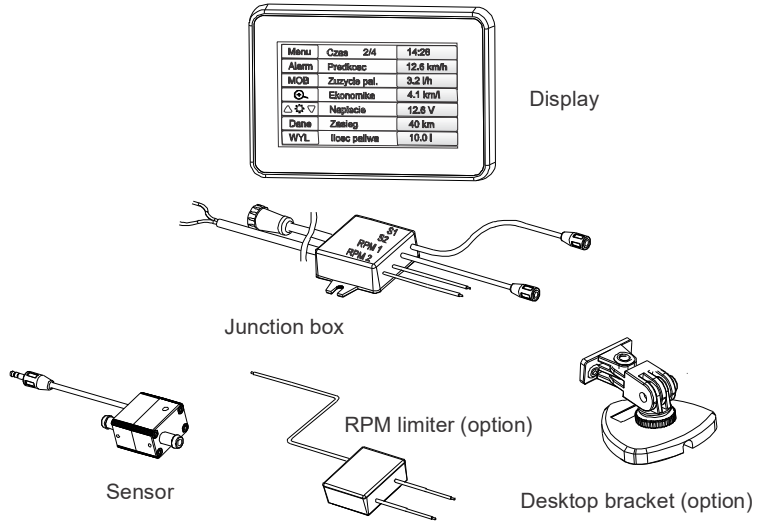




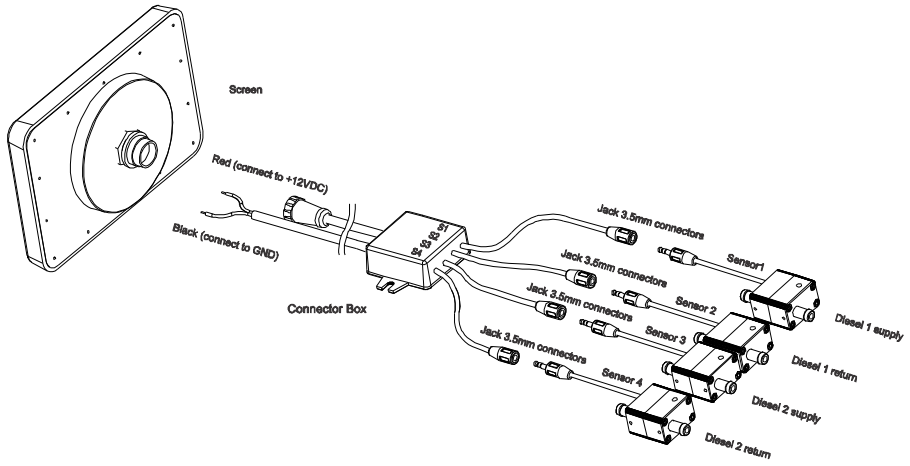
Connections for 1 Diesel engine



Connections for two petrol engines without return



The main components of the system (single engine)



Connections for 2 Diesel engines

Flowtrecs Wave - models

The following models are available:

Device Type	Version S	Version M	Version L	Version XL	Version XXL
Engine power range	20-60KM	60-130KM	130-250KM	250-350KM	350-500KM
Power	10-16VDC	10-16VDC	10-16VDC	10-16VDC	10-16VDC
Power consumption	0,3A	0,3A	0,3A	0,3A	0,3A
Measuring range	0.5-20l/h	1-50l/h	2-100l/h	3-150l/h	4-200l/h
Measurement error	5%	5%	5%	5%	5%
Connection diameter	9,5mm (3/8")	9,5mm (3/8")	11,5mm	11,5mm	11,5mm