



boat

vitals

Tomorrow's best of breed solutions delivered today

BOAT MONITORING

DATA INPUT, TRANSPORT, BLEND, CONTROLLING AND INFORMATION

BOAT-VITALS ADVANCED – USER GUIDE

GENERAL INFO

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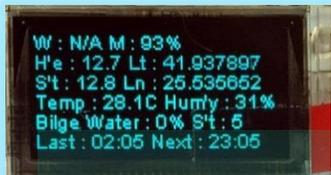


Installation of Advance Endpoint is straight forward.

The module can be installed naked without cover behind a wall or with the cover on per customer decision. If installed naked then care should be taken to allow space on around it for heat dissemination.

The humidity/temperature sensor is advisable to be located on appropriate place where this measurement are desired to be taken.

To achieve best connection install the device vertically with cable connectors pointing down – this way the GPS antenna pointing to the sky



In case your device is equipped with OLED screen it displays 6 lines text:

1. W(WiFi Signal strength), M (GSM/GPR/Mobile Signal strength), R (LoRa/IoR/Radio Signal Strength)
2. H'e (House/Service battery bank volts), Lt (GPS Latitude)
3. S't (Start Battery volts), Ln (GPS Longitude)
4. Temp (Temperature), Hum'y (Humidity)
5. Bilge Water, S't (GPS Satellites Count)
6. Last (Before how many minutes:seconds data has been sent to the server), Next (After how many minutes:seconds data will be send again to the server)

CONNECTING AND POWER UP

POWERING UP:

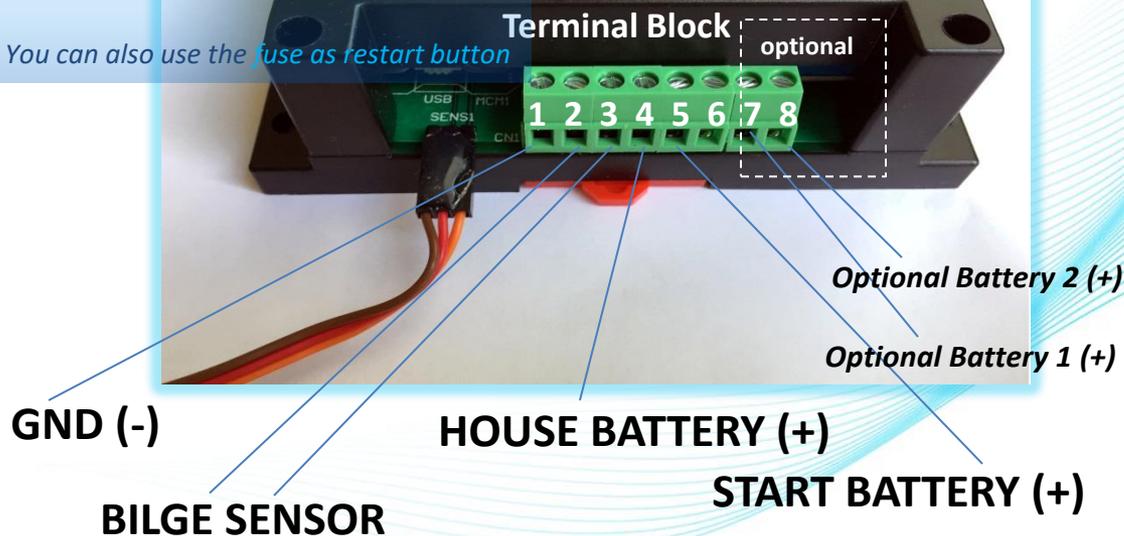
When connecting to power the regular procedure is to connect HOUSE "+", START "+" e.g. connect the common GND "-" terminal last.

NEVER connect ONLY the START BATTERY Terminals to power – this may burn your CPU module.

FUSE:

In case you install a fuse and/or switch THE FUSE/SWITCH NEED TO BE ON THE common GND (-) Terminal 1 – this will ensure a proper power up procedure.

You can also use the fuse as restart button



Using a screw driver connect all required cables (as per the figure on this page):

1. VCC/+ of House Battery to **Terminal 4**
2. VCC/+ of Start Battery to **Terminal 5**
3. Ground (-/GND) of Start and House Battery Banks to **Terminal 1**

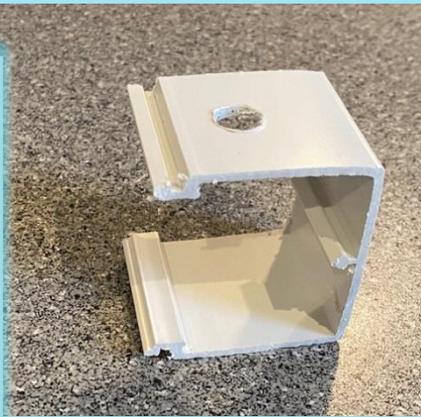
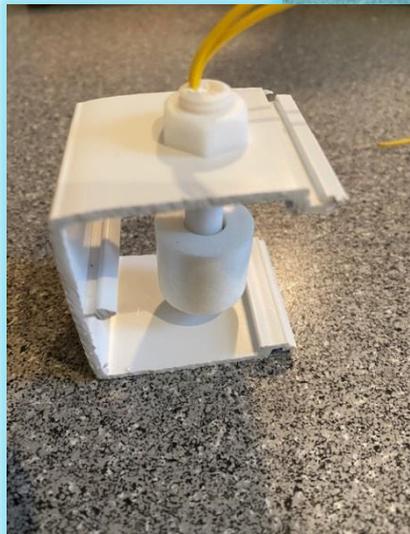
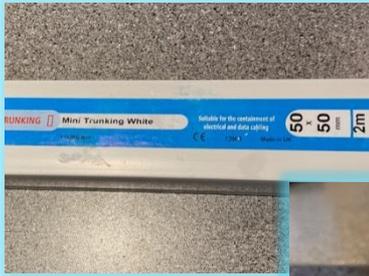
(optional)

4. Connect the two cables for bilge water sensor to **Terminal 2** and **Terminal 3** (no polarity) – if you need more then one bilge sensor (for CATs for example) you need to connect them in **series**.

***IMPORTANT :** in case NO bilge sensor is installed **Terminal 2** and **Terminal 3** need to be connected (shorted) with wire.

- **Terminal 6** is optional digital output – when device is in ON/Live - 3.3v (high), when device is in sleep mode 0v (low).
- If provided with optional **Terminal 7** and **Terminal 8** you can connect two additional batteries to them to be monitored using the batteries "+" terminals.

BILGE SENSOR



** As most of the questions that we receive are related to easiest way to install the bilge sensor – we have added this page with example installation steps.*

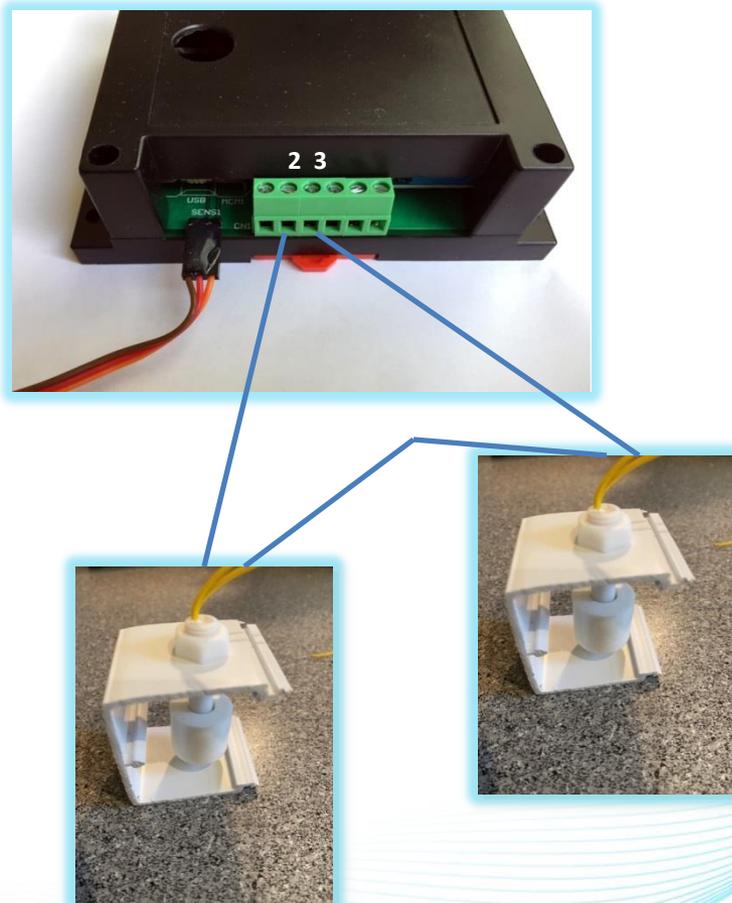
Every boat has a different bilge compartments and because of that we do not supply a standard bilge sensor holder, but never the less there is always similarities in the installs and here we will give a step by step guide for simple bilge sensor installation:

- Source a plastic channel profile (e.g. mini cable trunking 50mmx50mmx2mm)
- Cut a piece of about 50mm wide.
- Drill a hole on one side(10mm)
- Screw the sensor in the hole
- Screw or glue with sikaflex the bottom part of the holder to the hull with cables pointing up
- Extend the sensor cables to the device and connect to Terminal 2 and Terminal 3

CONNECTING IN SERIES

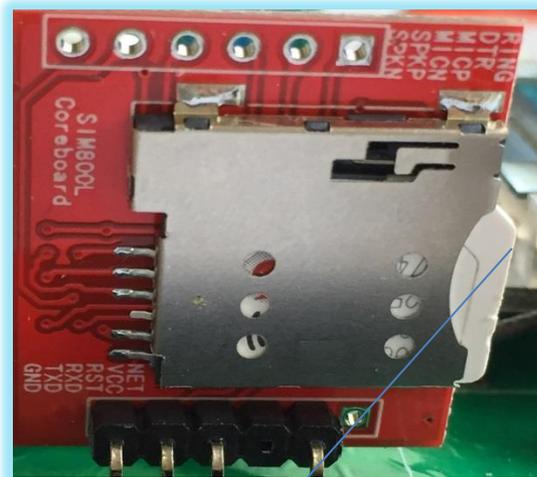
BILGE SENSORS

In case your boat has more than one bilge space or you have a multihull you can order additional bilge sensors from us (or buy them from third parties) and wire them in series as per the picture in the left.



COMMUNICATION

IF YOU INSTALL YOUR OWN SIM CARD



**PLEASE TAKE NOTE FROM THE PICTURE
HOW THE SIM CARD SHOULD BE
ORIENTED**

The device can send its data to the server using:

1. Using RF/Radio/IoT channel in case the marina where the boat is located has joined Boat-Vitals network (* if equipped with this future)
2. Using WiFi from the marina/café/MiFi or shared from a mobile device – configuration need to be done as described in the next page.
3. Using SIM/GSM/GPRS – For some world region the device is supplied with already fitted SIM card for other regions the customer can add his own SIM card with mobile internet to the device. – configuration need to be done as described in the next page.

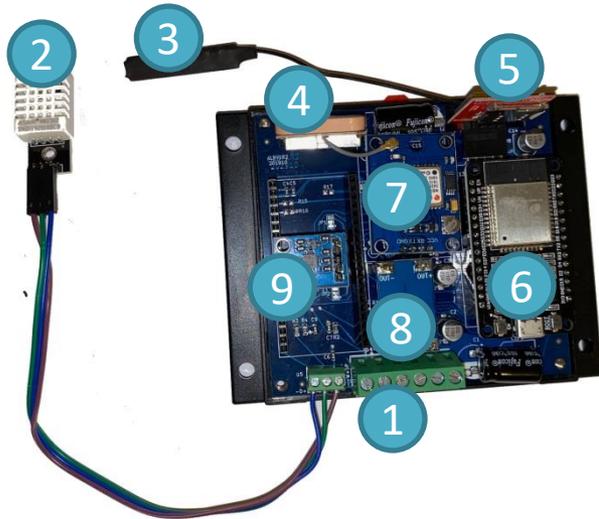
***IMPORTANT:** The internet traffic generated by the device (assuming its default reporting interval setting is used : once every 1/2h) is less then 3Kbytes per 24h: which equals to 1 MB per year. But depending on how the mobile operator calculate the traffic it can be calculated as significantly more. The system does 48 sessions per 24h.

WHAT IS INSIDE & LEDs

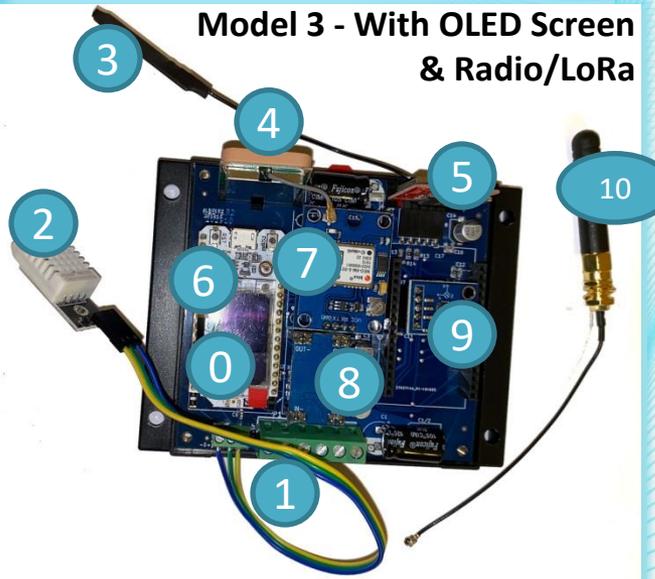
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Model 5 - No OLED Screen



Model 3 - With OLED Screen & Radio/LoRa



- 0. OLED Screen 0.96" 128x64 pix
- 1. Cable Terminal Block (1 to 6)
- 2. Temperature & Humidity Sensor
- 3. GSM/MOBILE Antenna
- 4. GPS Antenna (**point to the sky**)
- 5. GSP/Mobile Module
- 6. CPU/Computer Module
- 7. GSM Module
- 8. Power Module
- 9. Wave/Magnitude Sensor
- 10. Radio/LoRa Antenna (**do not install if not specially instructed to do so**)

THIS SIDE UP (pointing the sky)



- 1. Flashing blue light on the GPS Module - you have GPS *FIX* (it may take up to 15 min initially - for example when you fly from UK to Greece - e.g. the device has been moved in long distances while it is OFF)
- 2. Red light on GSM/Mobile Module - fast flashing acquiring mobile signal - slow flashing connected to mobile network
- 3. Light On - CPU Module means the CPU is powered ON
- 4. Flashing light (*once every 5 sec*) on CPU Module (*colour may vary*) the device is in deep-sleep (*energy saving mode*)
- 5. Blue glow near the cable terminals- the device is connected to power

POWER SAVE MODE

Emergency Power Saving Mode

The system has a cut-off voltage setting that can be adjusted from the Bluetooth Configurator.

When the voltage of the house battery stays 5 minutes at least under cut-off voltage the module goes automatically in emergency power saving mode.

The way to get out of emergency power saving mode is the voltage of the house battery stay over the cut-off voltage for about 15 minutes.

If you restart the power of the device and the house bank is still under cut-off voltage the device will stay on for 5 minutes and will go again in emergency power saving mode.



Power Saving Mode is designed to be used when the boat is left on her own for a longer periods and power usage is of concern .

To switch ON power saving mode you need to use the Bluetooth Configurator on a smart phone – supported operating systems are Android and iOS. In the Settings tab you have a drop down menu for Power Saving Mode (On/Off)

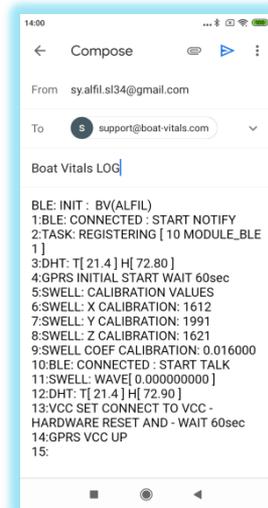
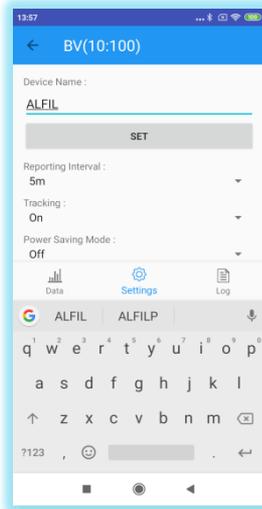
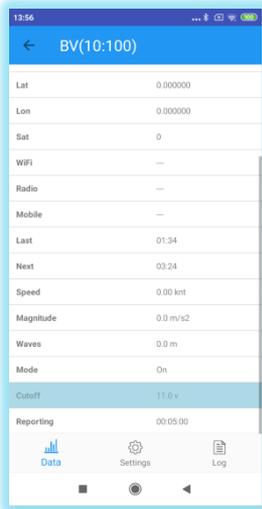
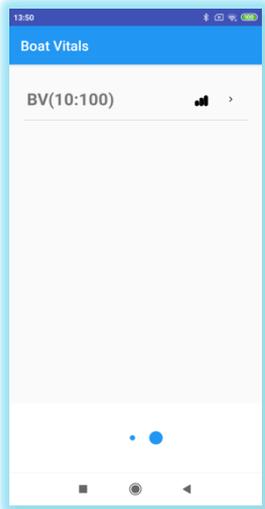
To Enable Power Saving Mode the Reporting Interval need to be set to a minimum of 30 minutes.

When in power saving mode and want to get out of it – there are two options – To wait for the next time the device will wakeup on its own according to the reporting interval and use the Bluetooth Configurator to switch Power Saving Mode OFF or to switch OFF and next ON the power of the device (*house battery*) – after switching ON the device automatically goes on full power mode.

Controlling the power of other devices on the boat

Cable Terminal 6 can be used to control external devices – when device is On the Cable terminal 6 will be in HIGH – when in power save mode Cable Terminal 6 will be in LOW. The Logic is on 3.3v.

MOBILE CONFIGURATOR



You can find the Google Play and iOS app store links for the Bluetooth(BLE) configurator from : <http://www.boat-vitals.com/setup.html>
Using the app you can :

- View real-time data from device
 - Find your location on the map
 - Control the power safe mode ON /OFF (*the device go in deep sleep between data send interval and consumption is down to 10 μ Ah - (in other words practically zero).*)
 - Changing the reporting interval (from 5min to do 24h)
(*when the boat is racing or on anchor or when on the hard and you do not need data with high frequency - the default setting of 1/2h will be restored after 24h automatically if your device is using mobile network traffic*)
(*Auto mode – device will report every 5 min when moving and every 30 min when stationary*)
 - Stop/Start tracking - when you don't want to be tracked where you go
 - Calibrate all voltmeters and enable/disable optional voltmeters
(*to enable optional voltmeters the wifi need to be disabled - SSID and Pass set to N/A*)
 - Cutoff - preferred voltage level at which the device stop using power and go in deep sleep.
 - Configure Mobile operator setting - in case you opt for own SIM card.
 - Configure WiFi in case you have wifi where the boat is and want to save from mobile traffic.
 - Download and install software updates/upgrades.
 - Configurable Device/Boat name
 - Send diagnostic information to support
- * First time the Settings tab is selected the app will ask for the device secret code – in case you have lost it – restart the power of the device and connect during the first 5 min after restart – in this case the secret code will not be asked for. Once the app has been connected to the device the code will be stored in the app and will not be required again on this mobile device.

WINDOWS CONFIGURATOR



Download and install USB driver for your device from:

<https://www.silabs.com/products/development-tools/software/usb-to-uart-bridge-vcp-drivers>

Download and install the Advanced Endpoint configurator from : <http://www.boat-vitals.com/setup.html>

1. Connect the device using USB to micro USB cable.
2. Start Advanced Endpoint configurator
3. Click "Refresh"
4. Click "Connect"
5. Click "Get Configuration"
6. IF all is OK the SSID, PASS, APN, APN USER, APN PASS should be filled with values. - if not check the connection.
7. If WiFi configuration is required set SSID and PASS and click "Send to EndpointAdvance".
8. If Mobile Internet configuration is required set APN, APN USER and APM PASS and click Send to "EndpointAdvance".