DIGITAL YACHT

NAVLINK BLUE
RUUVI NMEA2000 SERVER

Installation and instruction Manual

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Version 1.00

1. Introduction

Congratulations on the purchase of your NAVLink Blue Ruuvi Wireless NMEA 2000 Server. This product uses low energy wireless technology to receive data from Ruuvi sensors and convert that data in to NMEA 2000.

It is recommended that your product is installed by a professional installer, particularly when it comes to interfacing with other equipment.

Before installing and operating this unit, please consult the user manual of the navigation equipment that you are connecting this unit to.

2. Before you start

You will need the following items and tools to complete the installation:

- The NAVLink Blue Server and Ruuvi Sensor (supplied)
- Any additional Ruuvi sensors you wish to use
- Spare/suitable connection to the NMEA2000 network
- A wireless mobile device with a modern web browser
- M3 or M4 screws or other appropriate fixings (not supplied)

3. Installation

The NAVLink Blue and supplied Ruuvi sensor are IP54 rated (water resistant) and should be installed below deck in a dry location. Ruuvi do sell sensors with higher IP ratings for on-deck use, visit https://ruuvi.com/ for more information. A maximum of eight Ruuvi sensors can be connected to NAVLink Blue.

When locating the unit you should consider:

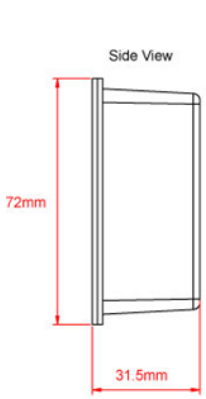
- Routing of the NMEA 2000 cable to the network.
- Sufficient space around the unit for cable connections.
- Maintaining the compass safe distance of 0.5m.
- Best location for Wireless reception i.e. not inside a metal enclosure
- A central location that ensures all Ruuvi sensors are within wireless range

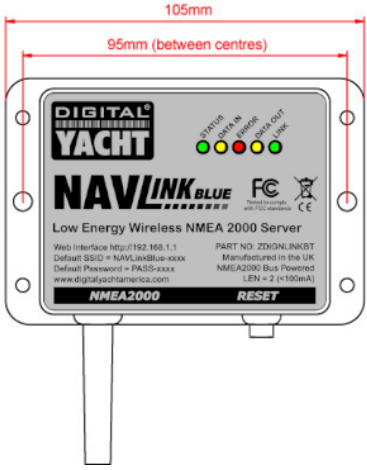
3.1 – Connecting to NMEA 2000 Network

- Connect the NAVLink Blue cable, to a spare connector on the NMEA2000 network.
- NAVLink Blue takes its power (LEN=2) from the NMEA2000 network so no additional connections are necessary.
- If you are creating a new NMEA2000 network, then you may wish to consider Digital Yacht's NMEA2000 Starter Kit, that provides all of the cables, connectors and terminators required for a basic NMEA2000 network.
- If you are connecting NAVLink Blue to a non-standard NMEA2000 network, then a suitable adaptor cable will need to be sourced from the relevant manufacturer;
  - SeaTalkNG (Raymarine P/No A06045)
  - Simnet (Simrad P/No 24006199)

3.2 – Mounting

- Using suitable fixings, attach the NAVLink Blue unit to a flat surface.
- Unit may be installed in any orientation.





3.3 – Powering NAVLink Blue and Discovering the Ruuvi Sensors

- Apply power to the NMEA 2000 network and the NAVLink Blue the LEDs should start to illuminate or flash, as per Table 1…

Condition	STATUS LED (Green)	DATA IN LED (Yellow)	ERROR LED (Red)	DATA OUT LED (Yellow)	LINK LED (Green)
ON (Solid)	Wi-Fi Connected		System Error		Wireless Connected
Flashing	Wi-Fi Not Connected	Data Received	Data Error	Data Transmitted	Wireless Not Connected
OFF		No Data From N2K	All OK	No Data To N2K	

Table 1

- By default the NAVLink Blue powers up in Bluetooth mode and will start looking for Ruuvi Sensors to connect with. Allow 30 seconds after power-up for the NAVLink Blue to detect and list all of the available Ruuvi sensors.
- Ensure that all of your Ruuvi sensors are on and within 10m of NAVLink Blue.
- After 30-60 seconds, proceed to section 3.4 to enable WiFi mode.

3.4 – Enabling Wireless Network and Accessing the Web Interface

- In order to complete the Ruuvi Sensor install, it is necessary to switch the NAVLink Blue in to WiFi mode, connect to it and access it's web interface.
- Press and hold the RESET Switch on the bottom edge of the unit for > 4 seconds (until all LEDs have illuminated). As you release the RESET switch, NAVLink Blue will reboot in WiFi mode, creating its own wireless Access Point (hotspot). The Name (SSID) of the Access Point will be "NAVLinkBlue-xxxx" where xxxx is the unique four digit code of your device.
- To connect to the NAVLink Blue you will need to scan for wireless networks, find and select it in the network list and then when prompted, enter the default WPA2 password, which is "PASS-xxxx", where xxxx is the same, unique four digit code that is in the hotspot name.

- Any device, connected to NAVLink Blue, can access its web interface by typing http://192.168.1.1 or http://NAVLinkBlue.local into its browser's address bar.
- This will display the Home page shown in Figure 1, from which you can go to the NMEA 2000 Devices and PGNs pages and Settings page.

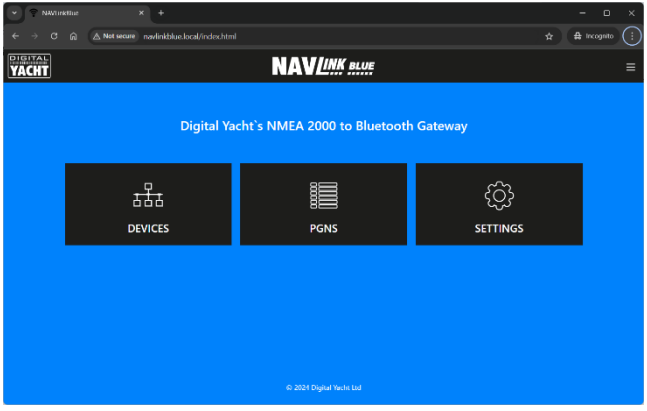


Figure 1

3.5 – Completing the Ruuvi Sensor Pairing

- To complete setting up the Ruuvi sensors that the NAVLink Blue detected in section 3.3, you need to access the SETTINGS page by clicking the SETTINGS button on the Home Page. You should see the SETTINGS page shown in Fig 2.
- In the "Configuration for Ruuvi Sensors" section, you will see all of the Ruuvi sensors that the NAVLink Blue discovered. In our example, there is just the one sensor displayed and you can see the sensor's MAC address, RSSI (signal strength) and Voltage of its internal battery.
- If you are setting up multiple sensors, it is recommended that you do them one at a time and bring the sensor that you want to setup closer to the NAVLink Blue than the other sensors – in this way you can identify it by its signal strength – it will have a smaller negative number i.e. -55dBm compared to -85dBm for a sensor that was further away.

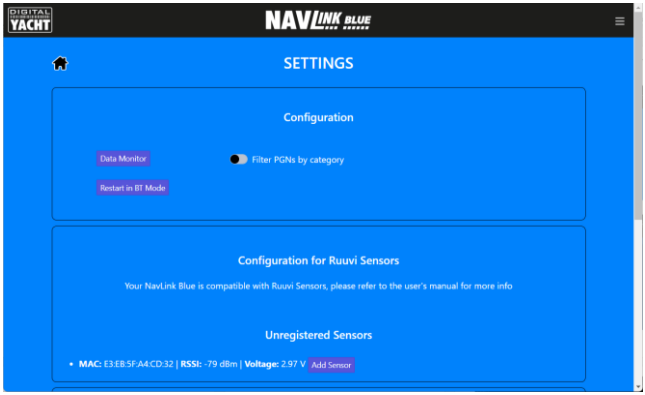


Figure 2

- When you are happy that you have correctly identified the sensor that you wish to setup, click the "Add Sensor" button alongside the sensor. Now a new Pop-Up will appear as shown in Fig 3.

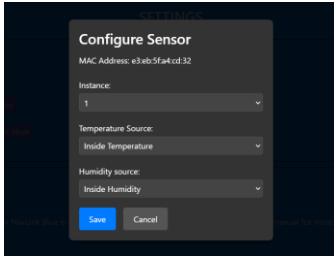


Figure 3

- Select the Device Instance that you want the sensor to have on the NMEA 2000 network, this differentiates temperatures of different locations i.e. Main Cabin, Guest Cabin, Galley, etc.
- Then select the type of temperature being measured, from the drop down list and finally set whether the humidity sensor is inside or outside of the boat. **NOTE** – Some MFDs will only display Outside Humidity, so if you are having problems displaying the humidity on an MFD, try setting to Outside Humidity.

- Once all of the options are correctly set for the sensor, click the “Save” button and the NAVLink Blue will show a pop-up that the sensor has been successfully registered. Then it will return to the SETTINGS page and you will see the registered sensor (Fig 4).

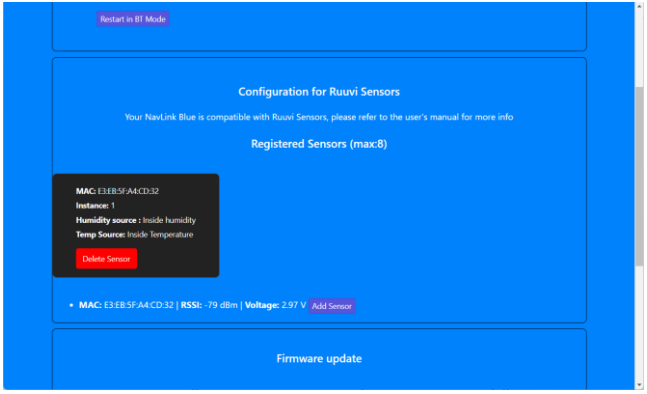


Figure 4

- Repeat this process for any other Ruuvi Sensors you need to use.
- Once all of the sensors are registered, you need to put the NAVLink Blue back in to Bluetooth mode, in order for the sensor data to be received and converted in to NMEA 2000.
- In the top section of the SETTINGS page, click the “Restart in BT Mode” button and the NAVLink Blue will reboot in Bluetooth mode.
- As soon as the NAVLink Blue has rebooted it should start transmitting the following PGNs for each sensor…

PGN 130313	Humidity
PGN 130314	Actual Pressure
PGN 130316	Temperature Extended

- If you have set different Device Instances for different sensors, then you should be able to see the different sensor values on the MFD.
- Each the NAVLink Blue is power cycled, it should pair with the Ruuvi sensors and start outputting NMEA 2000 data, more sensors can be added in the future by repeating the sensor configuration process.

3.5 – NMEA 2000 DEVICES Page

- When first installing an NMEA 2000 network or fault finding data issues, it is very useful to be able to check what Devices are on the NMEA 2000, view what data (PGNs) they are outputting and to check their Product and Configuration information – all of this is possible from the DEVICES page.
- Each Device is listed (see Fig 5) along with its Network Address (0-252), Manufacturer, CAN Name, Device Instance and Class and Function codes. In addition a “Green Heart” icon is shown to display if a device is working correctly and outputting data.
- If you click on the Green Heart icon, a new pop-up window will appear with a list of all the PGNs that the device is transmitting and the approximate update rate in milli-seconds (see Fig 6).
- If the device is outputting wrong/bad data or duplicated data, then you can instruct the NAVLink Blue to black list the device by clicking on the switch in the top left corner.

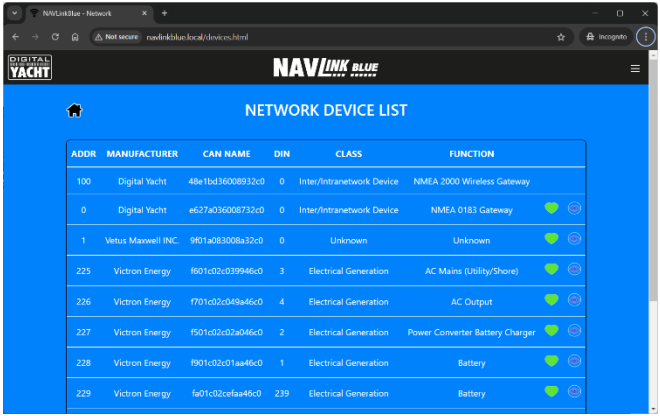


Figure 5

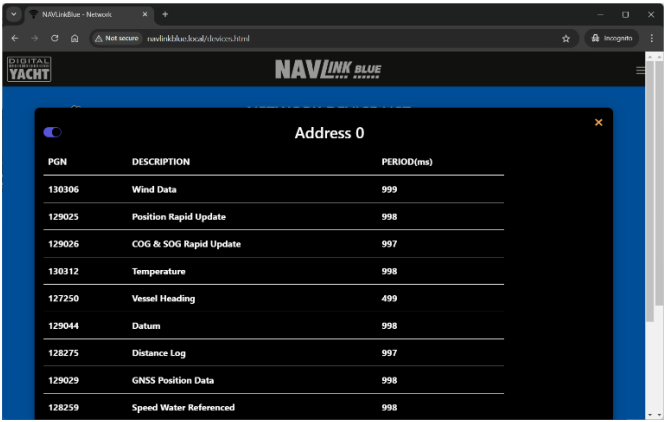


Figure 5

- To query the Product or Configuration Info of an NMEA 2000 Device, click on its “Eye” icon – to the right of the Green Heart icon. A pop-up window will appear showing the Product Info (Fig 7) or if you click the Config Info tab, the Configuration Info (Fig 8)

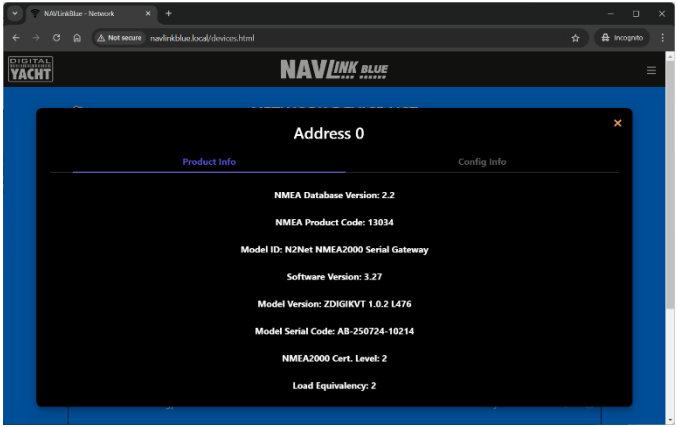


Figure 7

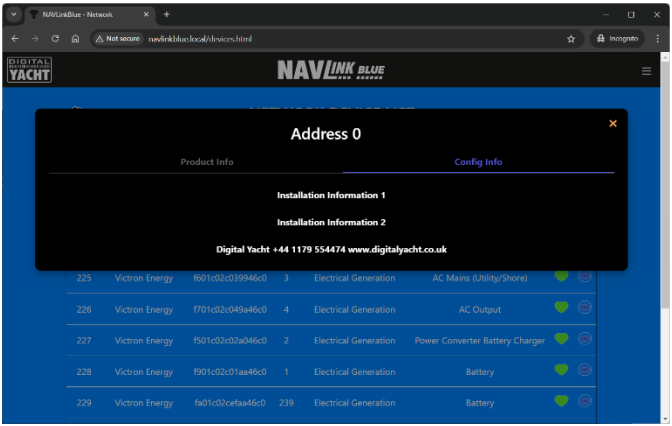


Figure 8

3.6 – NMEA 2000 PGNs Page

- If you wish to dig even deeper in to the NMEA 2000 data on the network, from the web interface Home Page, click on the PGNs page and a list of PGNs being received will be displayed – see Fig 6.

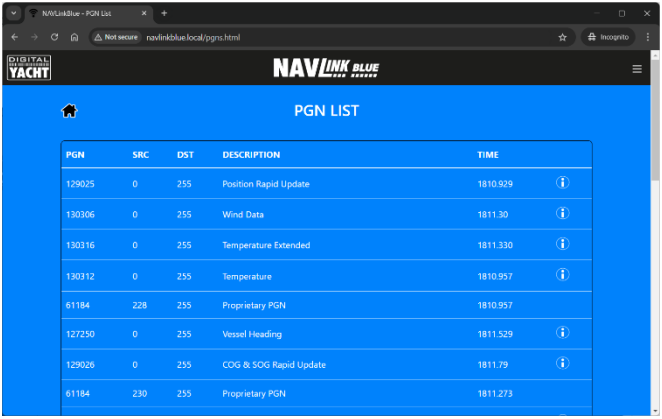


Figure 6

- Each PGN is listed with its PGN Number, Source Address of the Device that sent it, Destination Address of the Device it was sent to (255 = All Devices), the PGN Description and the relative time it was received since power up.
- If you wish to see the PGN's data values, click on the "Info" icon at the end of the PGN line and a new pop-up window will appear as seen in Fig 7.
- This pop-up window shows the values of each of the fields in the PGN and the values will update in real time as the data changes.
- By default the PGNs are listed in time order and the time value shown is the time in seconds, since the NAVLink Blue was turned ON.
- Each of the columns can be sorted in alphanumeric order, just click on the column name at the top of the list and you can sort by PGN number, Source Address, Destination Address of Description.

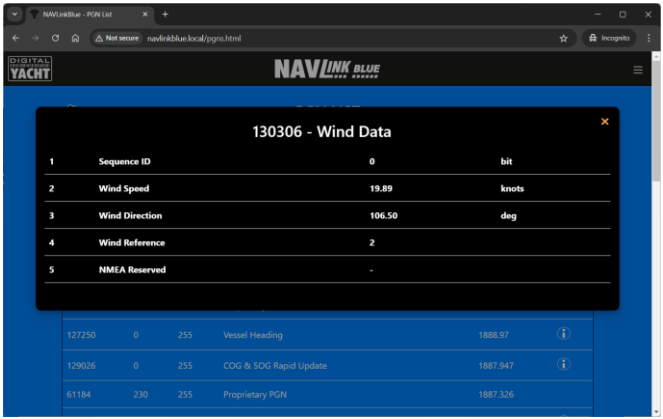


Figure 7

3.7 – SETTINGS Page

- To access the NAVLink Blue settings click on the SETTINGS button on the Home page and the page show in Fig 8 will appear.

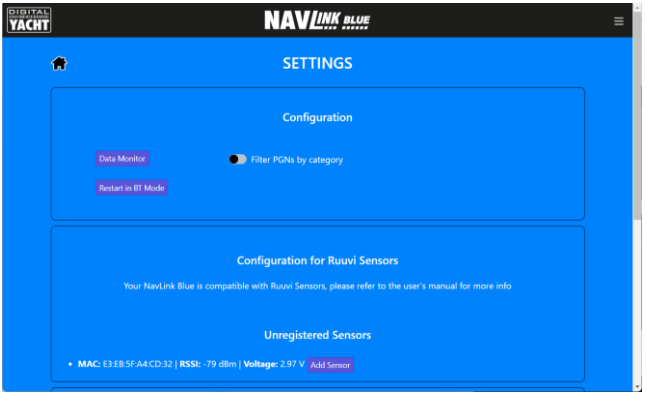


Figure 8

- For diagnostics purposes, it is possible to view and log all of the PGN data on the NMEA 2000 network. Click on the DATA MONITOR button and the window in Fig 9 will appear.

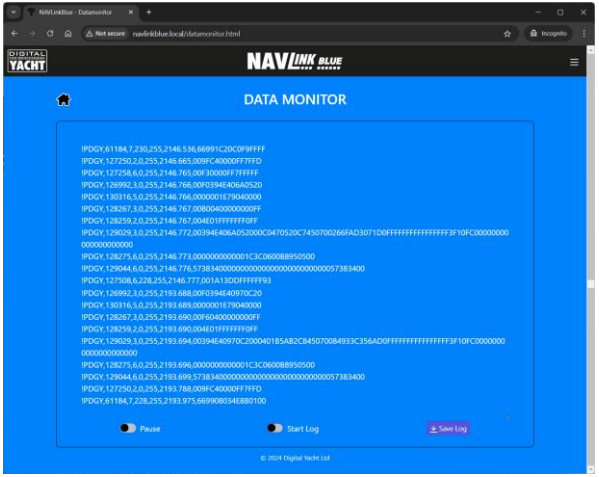


Figure 9

- You will now see all of the RAW NMEA 2000 PGN data scrolling down the page, where each line is one PGN.
- To log this data, scroll to the bottom of the page and click the START LOG button. Wait for a suitable period of time, you really want a good 5-10 minutes of data for a good log file and then click the STOP LOG button.
- To download the log file, click the SAVE LOG button and choose a suitable file location on your mobile device or email to support@digitalyacht.co.uk
- Also on the Settings page you can check what firmware version the NAVLink Blue has and update the firmware if required.

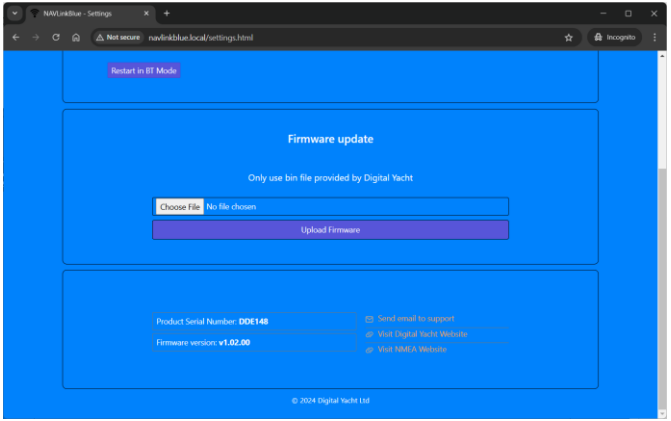


Figure 10