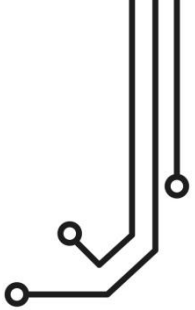

NAVLINK BLUE NMEA2000 SERVER & SENSOR GATEWAY

Installation and instruction Manual

Tel: 01179 554 474
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Version 2.00

1. Introduction

Congratulations on the purchase of your NAVLink Blue Wireless NMEA 2000 Server. This product uses low energy wireless technology to send NMEA 2000 data to compatible products and receive data from compatible sensors.

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 (supplied)
- Spare/suitable connection to the NMEA2000 network
- M3 or M4 screws or other appropriate fixings (not supplied).

To receive/display Wireless data from the NAVLink Blue you will need:

- An iOS device that has the popular NMEARemote instrument App installed.
- A fully working and powered NMEA 2000 network.

To transmit data to the NMEA2000 Network from compatible sensors you will need one of the compatible sensors:

- Ruuvi Tag
- Water presence sensor
- Calyspo wireless wind instrument

The list of compatible sensors is going to change with firmware updates; this list corresponds to firmware version 2.00.

3. Installation

The NAVLink Blue is IP54 rated (water resistant) and should be installed below deck in a dry location. 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

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.

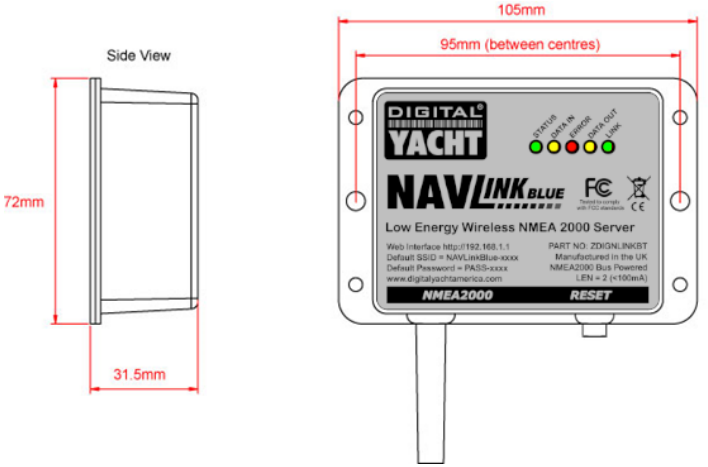


Figure 1 mounting points and dimensions

3.3 – Powering NAVLink Blue

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

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 2 LED operation

3.4 – Setting up the Wireless Network

• By default, NAVLink BLUE creates a wireless Access Point (hotspot) on-board your boat. 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.
• As soon as a wireless connection is established, the Status LED will stop flashing and stay permanently ON, whilst a wireless device is connected.

3.5 – Accessing the Web Interface

• The NAVLink Blue has a built-in web interface that can be used to configure the unit and display the data that it is sending to apps.

• 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 Bluetooth setup, Network Info and Settings pages.

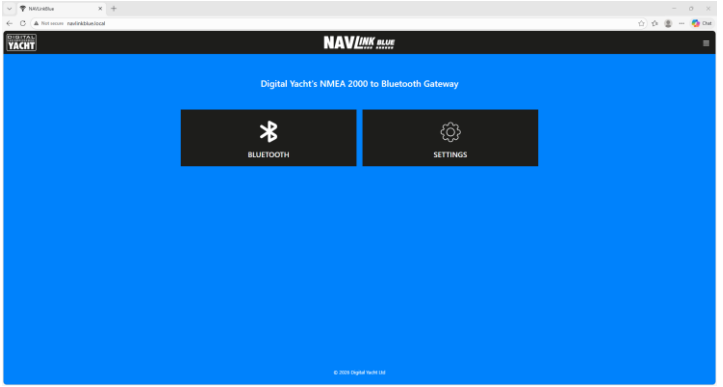


Figure 3 Web interface home page

3.6 – Wireless Network Configuration

The **NAVLink Blue** supports two wireless network modes, which can be selected on the **Settings** page:

1. **Access Point (AP) Mode – Default**
   In this mode, the NAVLink Blue creates its **own wireless network** that other devices can connect to.
2. **Station (STA) Mode**
   In this mode, the NAVLink Blue connects to an **existing wireless network on the boat**.

Access Point Mode (AP Mode)
By default, the **Access Point** tab is selected.
From this page, you can configure the following parameters:

- **SSID** (wireless network name)
- **Wireless password**
- **Wireless channel**

- **Static IP settings**

These settings control how other devices connect to the NAVLink Blue.
It is recommended to **modify these parameters only if you are familiar with computer networking**, as incorrect configuration may prevent devices from connecting properly.

Station Mode (STA Mode)
If you want the NAVLink Blue to connect to an **existing onboard wireless network**, set the **WiFi Mode** to **STA**.
You will then be able to:

1. **Scan for available wireless networks**
2. **Select the desired network**
3. **Enter the wireless password**

You can click the **"Eye" icon** to display the hidden password while typing.
By default, the NAVLink Blue will **automatically obtain an IP address** from the network (DHCP).
This IP address will appear **greyed out** in the configuration field.
If you prefer to assign a **fixed IP address**, disable **Auto IP** and manually enter the required network parameters.

Applying the Settings
After making your changes, click **"Update Settings"** to apply the configuration and reboot the NAVLink Blue.
The device will reboot in approximately **20 seconds** and attempt to join the selected network.

Status LED Indications

- If the connection is successful, the **Status LED will flash during startup and then remain ON**.
- If the NAVLink Blue cannot connect to the selected network (for example due to an incorrect password), the **Status LED will remain**

OFF, with a **short flash every two seconds** indicating that the device is attempting to connect.

After **three unsuccessful attempts (approximately 30 seconds)**, the NAVLink Blue will **temporarily return to Access Point mode** so that you can reconnect and modify the settings.

Factory Reset

If necessary, you can reset the device to **factory default settings** by **pressing and holding the Reset button for 10 seconds or more**.

4. Configuration of sensors and Bluetooth operation

4.1 – Using the NAVLink Blue in Server mode

The NAVLink Blue can be used in two modes:

- Server mode: used to connect to Vakaros Atlas 2 or NMEA Remote application. In this mode you can't connect to other devices
- Client mode: used to connect to external sensors (Calypso, Ruuvi Tag and water presence sensors)

By default, the NAVLink Blue will start in Server mode. If you wish to change from client mode to server mode, please go to the settings page and click on "Switch to server mode".

Server Mode – Data Source Selection
In **Server Mode**, the NAVLink Blue includes a **Source Selector** feature that allows you to choose which device will transmit data to the **Bluetooth Low Energy (BLE) connection**.
This function is useful when **multiple devices on the NMEA 2000 network transmit the same type of data (PGN)**, such as:

- Wind data
- GNSS (GPS) position
- Depth
- Other navigation data

Using the **Source Selector**, you can define which device will be used as the **primary source for each PGN** sent over the BLE connection. This ensures that the correct data source is transmitted when multiple instruments provide the same information.

Server Mode also allows developers to access the **NMEA 2000 network via Bluetooth (BLE)**. Applications can **send and receive data (full duplex)** between

their device and the NMEA 2000 network. More information is available at the following link: https://github.com/digitalyacht/NavLink-Blue

4.2 – How to Connect to External Sensors Using NAVLink Blue (Client Mode)

For all sensors described in this document, only the **pairing procedure with the NAVLink Blue** is covered. For detailed information regarding **installation, calibration, and operation of the sensors**, please refer to the **manufacturer's user manual for each device**.

The NAVLink Blue can be used in two modes:

- **Server Mode**

used to connect to Vakaros Atlas 2 or NMEA Remote application. When the device is operating in this mode, it **cannot connect to external sensors**.

- **Client Mode**

Client mode allows the NAVLink Blue to connect to external Bluetooth sensors such as:

- Calypso
- RuuviTag
- Water presence sensor

Switching to Client Mode

By default, the **NAVLink Blue starts in Server mode**.
If you want to connect external sensors, you must switch the device to Client mode:

1. Open the **Settings** page.
2. Click **"Switch to Client Mode"**.

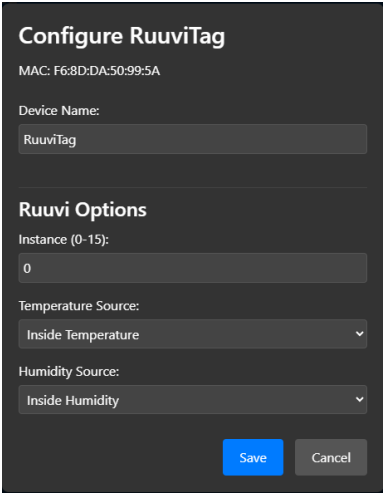
Once the NAVLink Blue is in Client mode, it will be able to detect and connect to compatible external sensors.

A. Ruuvi tag sensor

To connect a **RuuviTag sensor**, go to the **Bluetooth** page. If the RuuviTag is detected, it will appear in the **Unregistered Devices** section.

If you do not see the RuuviTag, please follow the **Ruuvi pairing process** and check the device using the **Ruuvi mobile application**.
Note that when the device is shipped, a **battery isolation tab** is installed. This tab must be removed for the device to operate.

Once the device appears in the list, click **"Pair"**.
After clicking the **Pair** button, the following configuration window will appear.



You will be able to configure the following parameters:

- **Instance**
  This allows multiple RuuviTag sensors to be connected and uniquely identified on the **NMEA 2000 network**.
  In most installations, leaving the instance set to **0 (default)** will work correctly.
- **Temperature Source**
  Select the temperature source from the RuuviTag that will be transmitted and displayed on your **MFD**.
- **Humidity Source**
  Select the humidity source to be transmitted.
  Note that **Garmin MFDs only display humidity when the source is set to "Outside Humidity."**

If you experience issues with the selected data source, you can **unpair the device and repeat the pairing process**, selecting a different source to troubleshoot the system.

B. Calypso Wireless wind instrument

To connect a **Calypso Wireless Wind Sensor**, go to the **Bluetooth** page.
If the Calypso sensor is detected, it will appear in the **Unregistered Devices** section.
If you do not see the Calypso sensor, please follow the **Calypso pairing process** and verify the device using the **Calypso mobile application**.

IMPORTANT: The sensor will not connect if the **Calypso mobile application** is currently connected to the device. The Calypso sensor **does not support multiple Bluetooth connections**, so the mobile application must be disconnected before pairing it with the NAVLink Blue.

The Calypso sensor **does not require any additional configuration**. Simply click **"Pair"** to connect the device.

Because this sensor is often mounted in locations that are **difficult to access**, the NAVLink Blue supports **Battery Status** and **DC Detailed Status PGNs**.
This allows the **remaining battery level of the sensor to be displayed on compatible MFDs**, as shown on Garmin MFDs.

Figure 4 State of charge of the Calypso Unit and wind data on a Garmin GPSMAP

Note:
If the sensor cannot be detected by the **Calypso mobile application**, it will also **not be detected by the NAVLink Blue**. Make sure the device is powered and visible in the Calypso app before attempting to pair it with the NAVLink Blue.

The **Bluetooth range** of the Calypso sensor depends on the **transmission power of the sensor itself** and the installation environment. As a result, the achievable range may vary depending on mounting location and surrounding structures. This transmission power is defined by the Calypso device, and the NAVLink Blue cannot increase or extend it.

C. Water presence sensor

You can connect a water presence sensor to the NAVLink Blue. Go to the Bluetooth page and add the device named **MSL01 Leak**.

You will be prompted to change the device name. You can either keep the default name or assign a custom name (e.g., “Engine Room”) to better identify where water is detected.
This name will appear in the alert displayed on your compatible MFDs.

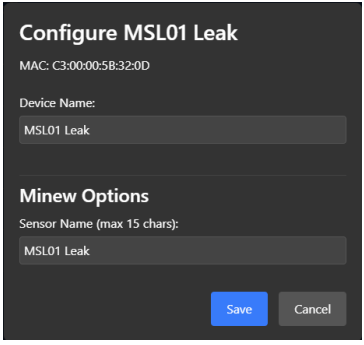


Figure 5 Water presence sensor configuration

5. Other settings and normal operation

5.1 Settings page

- To access the NAVLink Blue settings click on the SETTINGS button on the Home page and the page in Fig 6 will appear.

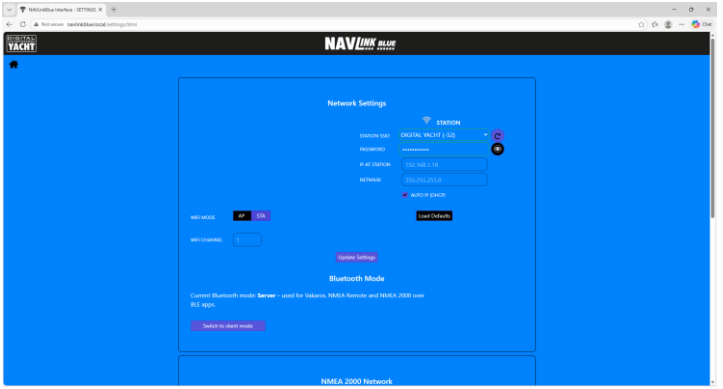


Figure 6 Settings webpage

- You can find an OTA update section on the Settings page. This is used to perform remote updates when the device is already installed on the boat. Please only use firmware files provided by Digital Yacht.
- For example, if you want to upgrade from version 1.03 to version 2.00, you will need to upload two files: first the file that ends with "_F", followed by the file that ends with "_S". You can check which version is currently installed on your device at the bottom of the page.

5.2 Data monitor page

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 10 will appear.

- 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

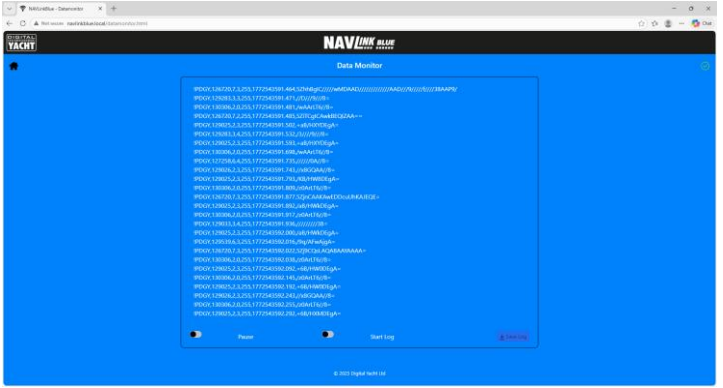
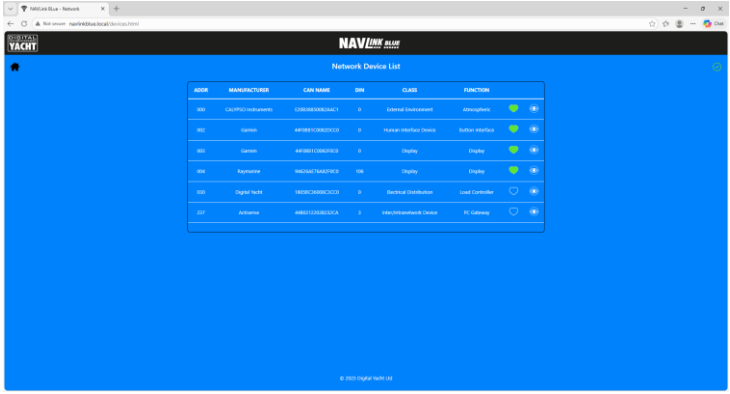


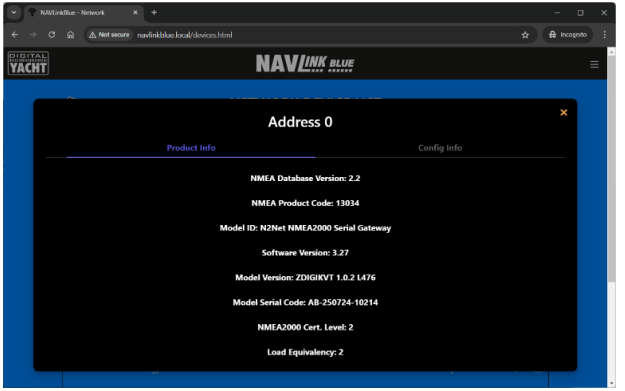
Figure 10 Data monitor page

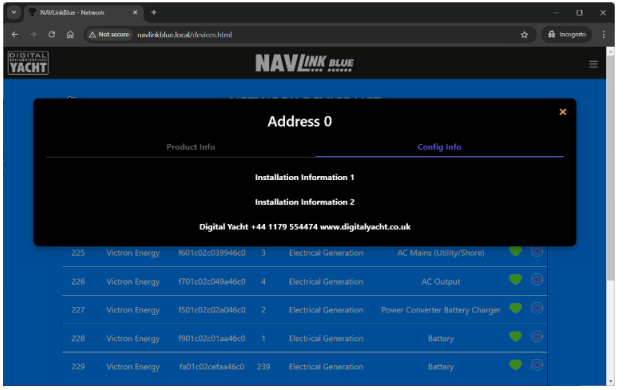
5.3 – NMEA 2000 DEVICES Page

- 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 2) 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.
- 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.



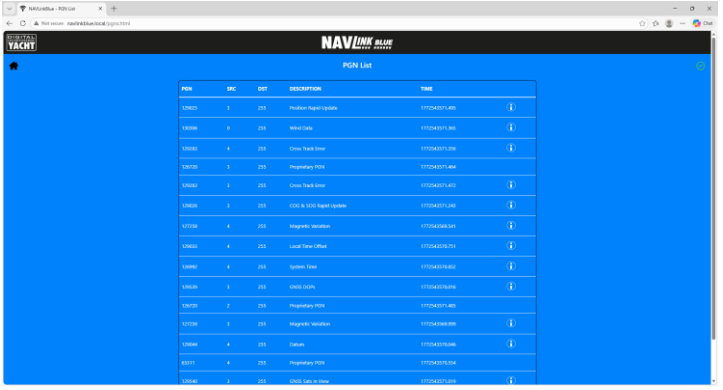
- To query the Product or Configuration Info of an NMEA 2000 Device, click on its “Eye” icon – to the right of the Green Heart icon. A pop-up window will appear showing the Product Info (Fig 4) or if you click the Config Info tab, the Configuration Info (Fig 5)



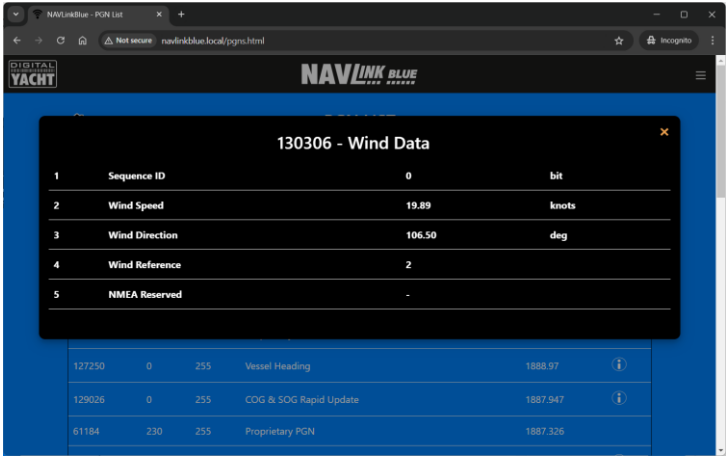


5.4 – NMEA 2000 PGNs Page

- 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.



- 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.



If you need any information or encounter any issues with your device, please submit a support ticket at:
https://digitalyacht.support/