DIGITAL YACHT

SAIL BOAT   SPORT FISHING   MOTOR BOAT

NAVLINK2 WIRELESS NMEA2000 SERVER

Installation and instruction Manual

1. Introduction

Congratulations on the purchase of your NavLink2 Wireless NMEA 2000 Server. This product replaces our original NavLink product and features a new smart web interface for configuration via a web browser on your mobile device.

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 Wireless NMEA 2000 Server (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 NavLink2 you will need:
- Suitable navigation software running on a PC, iPhone/iPad, Mac or other wireless device.
- A fully working and powered NMEA 2000 network.

3. Installation

The NavLink2 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 Wi-Fi reception i.e. not inside a metal enclosure

3.1 – Connecting to NMEA 2000 Network

- Connect the NavLink 2 cable, to a spare connector on the NMEA2000 network.
- NavLink2 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 NavLink2 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 NavLink2 unit to a flat surface.
- Unit may be installed in any orientation.
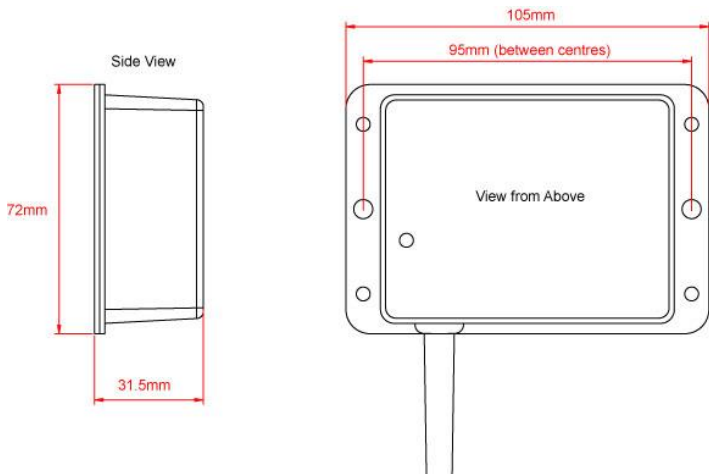
3.3 – Powering NavLink2

- Apply power to the NMEA 2000 network and the NavLink2 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)			System Error		TCP Connection
Fast Blink	No Wi-Fi connection	Data	Data Error	Data	
Slow Blink		Data	Network Error	Data	UDP Connection
OFF	Wireless device connected	No Data From N2K	All OK	No Data From App	No Power

Table 1

3.4 – Setting up the Wireless Network

- By default, NavLink2' creates a wireless Access Point (hotspot) on-board your boat. The Name (SSID) of the Access Point will be "**DY-WiFi-xxxx**" where xxxx is the unique four digit code of your device.
- To connect to the NavLink2 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 connections 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 NavLink2 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 NavLink2, can access its web interface by typing http://192.168.1.1 or http://dy-wifi.local in to its browser's address bar.

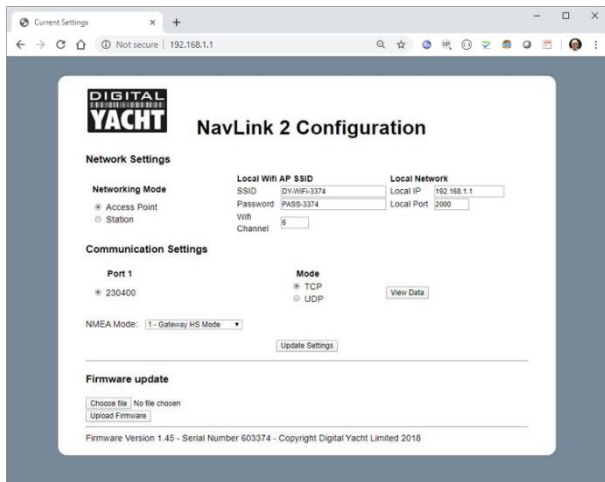- This should bring up the web page shown in Figure 1.

Figure 1

3.6 – Configuration

- From the above web page, you can change the wireless network name (SSID) that NavLink2 creates and/or the wireless password for better security.
- In Access Point mode you can also select the wireless channel you wish to use, in case another onboard wireless device is using the same channel frequency which can reduce performance.
- If you wish to make NavLink2 join an existing wireless network on the boat, rather than create its own, you can select Station mode. The screen will change, as shown in Figure 2, and you must select a network to connect to and enter its wireless password. As soon as the settings are updated, NavLink2 will now always try and join this network and not create its own.
- If you would prefer to have multiple devices all receiving the NavLInk2 data, then you can change the communication mode from TCP to UDP and then up to 7 devices can all receive the data. TCP mode is the best mode for secure, single device connections and must be used for driving an autopilot.
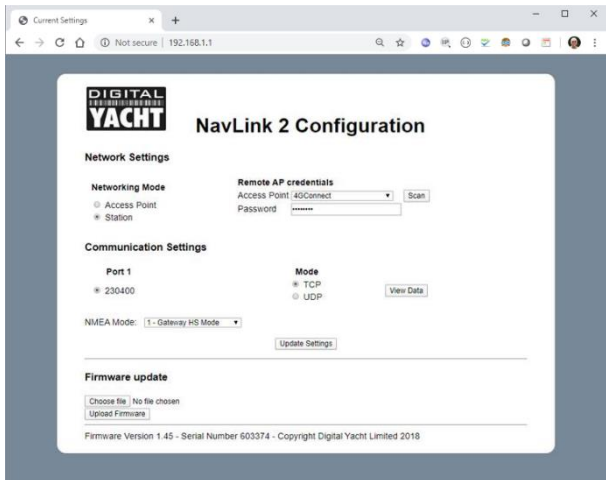
Figure 2

- The NMEA Mode setting sets what NMEA2000 to NMEA0183 conversions the NavLink2 does – please refer to the table below for more information.

MODE	Interface	NMEA DATA	Sentences
0 - Gateway	NMEA0183	GPS/Navigation/Instruments	RMC, HDG, VHW, MWV, DPT, MTW, MDA, APB, RMB, VLW, XTE, ROT, RSA
1 - Gateway HS (*Default*)	NMEA0183	GPS/Navigation/Instruments/AIS	RMC, HDG, VHW, MWV, DPT,MTW, MDA, APB, RMB, VLW,XTE, ROT,RSA,VDO, VDM
2 - GPS (1Hz)	NMEA0183	GPS Only (1Hz)	RMC, GSA, GSV, ZDA
3 - GPS HS (10Hz)	NMEA0183	GPS Only (10Hz)	RMC, GSA, GSV, ZDA
4 - Wind (5Hz)	NMEA0183	Wind Only (5Hz)	MWV
5 - AIS (Navionics)	NMEA0183	AIS + GPS Only	VDO, VDM, RMC, DPT
6 - Heading	NMEA0183	Heading Only (10Hz)	HDG
7 - Instrument	NMEA0183	GPS/Navigation/Instruments (1Hz)	RMC, HDG, VHW, MWV, DPT, MTW,MDA, APB, RMB, VLW, XTE, ROT, RSA
8 - Depth	NMEA0183	Depth+Water Temp+GPS (1Hz)	DPT, MTW,MDA, VHW, VLW, RMC
9 - For Future Use			
10 - For Future Use			
11 - For Future Use			
12 - For Future Use			
13 - For Future Use			
14 - Full Mode	NMEA0183	All Conversions at N2K update rate	APB,RSA,VHW,HDG,ROT,DPT,VLW,RMC,XTE,VDR,GSV,GSA,MWV,MWD,MDA,MTW, GGA,VTG,ZDA,VWR,RMB,VDO,VDM
15 - RAW Mode	N2Net	RAW NMEA2000 data over Wi-Fi	Not Applicable

- To see exactly what data the NavLink2 is converting and sending to your app, click the "View Data" button and the web page in Figure 3 will appear.
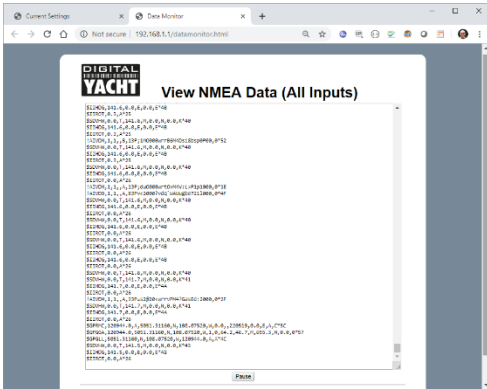

Figure 3

- Finally, on this page there are a "Choose File" and an "Upload Firmware" button, to update the NavLink 2.

After changing any of the settings, click the "Update Settings" button to save and apply your changes. If the changes affect the networking then the NavLink2 will reboot and you will need to reconnect wirelessly to it.

If you make a mistake with a setting or forget a password, reset the NavLink2 to factory defaults by pressing and holding the Reset button for 10 secs or more.

4. Normal Operation

The NavLink 2 is powered from the NMEA2000 network, so as soon as the network is turned on, the NavLink 2 will boot up.

If it is in the default AP Mode, then within a few seconds you should see its wireless network appear on your mobile device. If you have previously told your device to automatically connect to this network, then it will associate with the NavLink 2.

This association is indicated by the green Status LED, which flashes when first turned on, staying permanently ON, all of the time that a wireless device is connected to the NavLink 2 network.

If the NavLink 2 is in STA mode,and the wireless network that you configured it to connect to is available, then NavLink 2 will associate with it and the green Status LED will stop flashing and remain permanently ON, unless it loses wireless connection with that network, at which point it will flash again.

Every time NMEA2000 data is received, the "DATA IN" LED will flash. On some large networks, it is not unusual for the yellow LED to be constantly flickering. If the navigation App sends out data the "DATA OUT" LED will flash.

In the event of wireless connection problems, press and hold the Reset button for 4-5 seconds which reboots the interface. In busy marinas with high levels of wireless activity, reliable connection to the NavLink2 may be difficult, but once underway (at sea) a strong and reliable connection will be achieved.

4.1 - Interfacing with Mobile Apps

The NavLink2 is compatible with any app that can receive wireless NMEA data and we have created an online guide on how to connect to the most popular ones…

https://digitalyacht.net/configure-apps-software/

The IP address and port that the NavLink2 transmits data on are;

IP Address - **192.168.1.1**
Port - **2000**

By default the NavLink 2 is set to operate in TCP mode but you can select UDP mode using the web interface. Most apps that support UDP connections do not ask you to enter the IP address just the port number.

Please note that on both iOS and Android devices, it is best to always completely close an app, as highlighted in this article.

Some apps, only support a limited number of NMEA sentences and do not like receiving lots of data. Use the NMEA Mode selection in the web interface to change the amount and type of data transmitted e.g. for the Navionics Boating App we have found that Mode 5 "AIS and GPS only" is the best mode to use.