



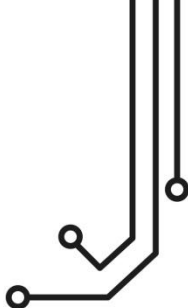
SAIL BOAT



SPORT FISHING



MOTOR BOAT



# WLN10 SMART WIRELESS NMEA SERVER

Installation and instruction Manual



## 1. Introduction

Congratulations on the purchase of your Smart Wireless NMEA Server.

This product replaces our original WLN10/WLN10HS products and features a smart web interface that can be displayed and configured using the 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 you should 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 Smart Wireless NMEA Server (supplied)
- A 12V or 24V DC power connection where the unit will be installed
- M3 or M4 screws or other fixings appropriate to the mounting location (not supplied).

To receive/display wireless data from the Smart Server you will need:

- Suitable navigation software running on a PC, iPhone/iPad, Mac or other wireless device.
- A device with an NMEA 0183 data output/input at either 4800baud or 38,400baud.

### 3. Installation

The Smart Server is IP54 rated (water resistant) and should be installed below deck in a dry location. When locating the unit you should consider:

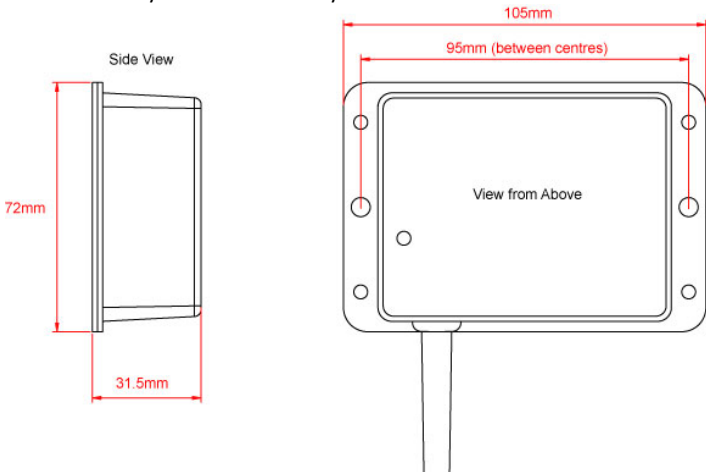
- Routing of power and NMEA0183 data cables to the unit.
- Sufficient space around the unit for cable connections.
- Maintaining the compass safe distance of 0.5m.
- Best location for Wi-Fi reception i.e. not inside a metal enclosure

#### Installation Step 1 - Cabling

- Run 12v or 24v power connections to the Smart Server
- Run the NMEA 0183 interfacing cables to the Smart Server

#### Installation Step 2 – Mounting the Smart Server

- Using suitable fixings, attach the Smart Server to a flat surface.
- Unit may be installed in any orientation.



### Installation Step 3 – Powering the WLN10

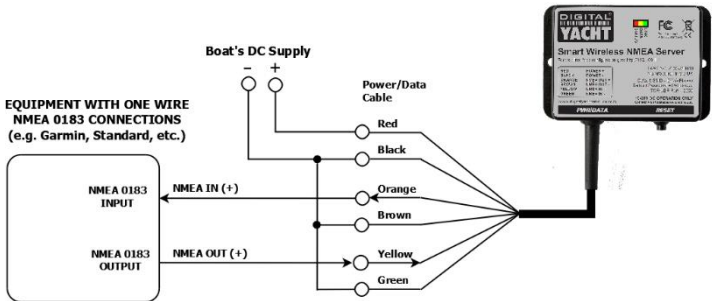
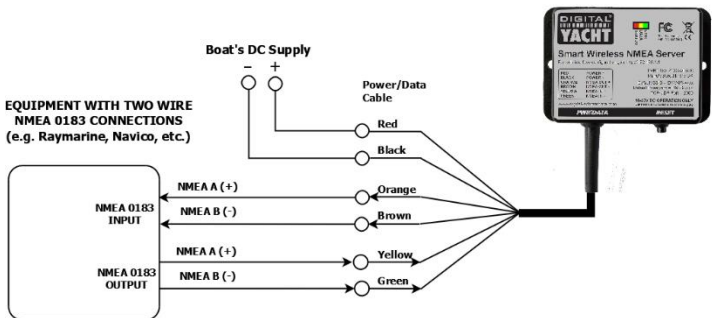
- Connect the 12/24v DC supply to RED(+) and BLACK(-) wires of the PWR/DATA cable.
- An in-line 1A fuse (not supplied) or suitable circuit breaker, should be wired in the positive power connection to protect the cabling.
- Apply power and the three LEDs should start to illuminate or flash. The following table shows what each LED indicates;

Condition	Red LED	Yellow LED	Green LED
ON (Solid)	Failed to Connect in STA Mode		HTTP or TCP Connection
Blink	No wireless connections	Data	Wireless Connection
OFF	Wireless Connection	No Data	No Connection

- Turn off the WLN10 and continue with the NMEA, USB and Wireless installation.

### Installation Step 4 – Interfacing (NMEA)

- The Smart Server allows full bi-directional, wireless NMEA0183 data communication, but in some installations, you only need communication in one direction i.e. NMEA0183 data from an instrument system to an iPhone/iPad application.
- In this situation do not connect the Orange(+) and Brown(-) data output wires, just trim the bare ends and ensure they cannot touch each other or any other electrical connections.
- Below are diagrams showing how to connect the Smart Server to two wire and single wire NMEA devices;



- By default the Smart Server is set to 38400 baud, but this can be changed to 4800 baud via its built-in web interface

## Installation Step 5 – Wireless Interfacing

- By default, the Smart Server's 802.11 b/g/n wireless adaptor, creates a wireless Access Point (hotspot) on-board your boat.
- The Name (SSID) of the Access Point will be **"WLN10SM-xxxx"** where xxxx is the unique four digit code of your device.
- To connect to the Smart Server you will need to scan for wireless networks, select it and then enter the default WPA2 password,

which is “**PASS-xxxx**”, where xxxx is the same, unique four digit code in the hotspot name.

- Consult the user manual for your wireless device to understand how to connect to a wireless network.
- The Smart Server can transmit wireless NMEA data using two different network modes; either TCP (up to 3 devices) or UDP (multiple device connection).
- There is no need to select which mode you want to use, as the WLN10SM supports both modes at the same time.
- Once your mobile device is wirelessly connected to the Smart Server, open the navigation application that accepts NMEA data over a TCP or UDP connection and setup the connection.
- Consult the help documentation for your App to see how wireless data connections should be configured.
- The IP address and port that the Smart Server transmits data on are;

**IP Address** - **192.168.1.1**

**Port** - **2000**

- Note that some UDP connections do not ask you to enter the IP address just the port number. If your app does expect an IP address, try entering the IP address above or 0.0.0.0 which some apps including Navionics Boating need.

## 4. Normal Operation

The Smart Server consumes around 0.1 Amp and can be left on whenever the boat is sailing. Every time NMEA data is received, the yellow data LED will flash. In some systems with lots of NMEA data, it is not unusual for the yellow LED to be constantly flickering.

By default, the WLN10SM creates its own WPA2 password protected wireless network within a few seconds of powering up and the red Status LED will flash. As soon as a wireless device successfully connects to the

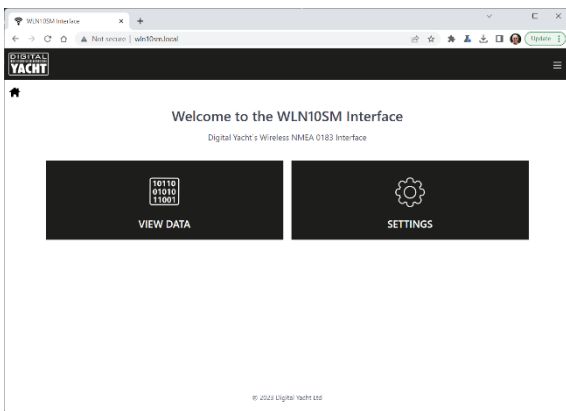
Smart Server's wireless network, the red Status LED will turn OFF and the Green Link LED will start to flash.

Alternatively, if the boat already has a Wireless Router onboard, you can make the Smart Server connect to that network, rather than create its own. Select "Station" mode in the Smart Web Interface.

## Using the Smart Server's Web Interface

Any device, wirelessly connected to the Smart Server, can access its web interface by typing <http://192.168.1.1> or <http://wln10sm.local> in to its browser's address bar.

This will take you to the WLN10SM's homepage as shown in Fig1. From the home page, you can go to **VIEW DATA** to see the NMEA 0183 data that is being received or go to the **SETTINGS** page to configure the WLN10SM.



*Figure 1*

Clicking the **VIEW DATA** button, takes you to the page shown in Fig2, which shows the real-time data that is being received, so that you can spot problems with the data. It is also possible to log the raw NMEA 0183 data being received so that you can analyse and/or share it.

By clicking on the **View Data** button on the home page. This will display the Data Monitor page, where you should see a stream of data sentences scrolling down the page (Fig 2).

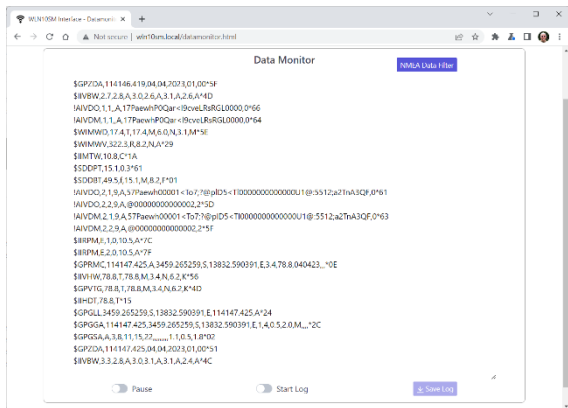


Figure 2

At the bottom of this page are three buttons, **Pause** to freeze the scrolling data, **Start/Stop Log** to log the data and **Save Log** to download the log file to your wireless device.

It is also possible to filter NMEA 0183 Sentences that you do not want to be transmitted to your wireless app, because there are duplicate, too many or wrong sentences being received. To setup a filter, click the NMEA DATA FILTER button and a page like the one in Fig3 will be displayed.

Simply tick the sentences that you want to be filtered out and click the **Save** button. These sentences will now no longer be transmitted to the wireless apps. In the View Data scrolling display, the received sentence will still be shown, but it will be labelled as "Filtered".

To configure the WLN10SM, click the SETTINGS button on the home page and the Settings page shown in Fig4, will be displayed. The first section of this page are the Network settings and by default you will see the AP Mode settings.



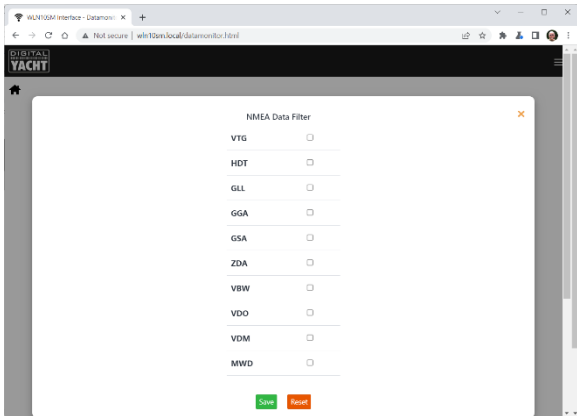


Figure 3

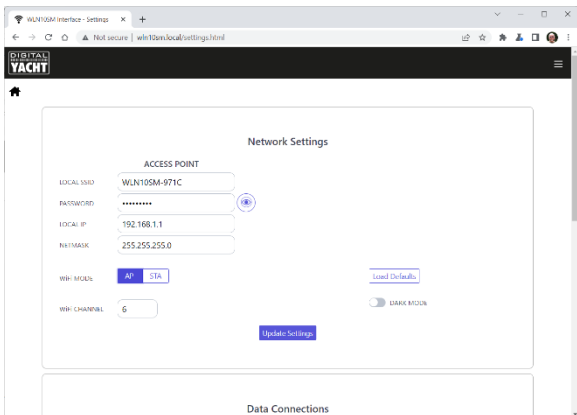


Figure 4

If you wish to change the wireless network name and password that the WLN10SM uses, then change it in this section. Click the “Eye” icon to display the wireless password – useful to double check your typing. You can also change the Wi-Fi channel it uses if you are in a busy Wi-Fi area.

If you wish to make the WLN10SM join an existing wireless network on the boat, then click the STA button and the display will change to that in Fig5.

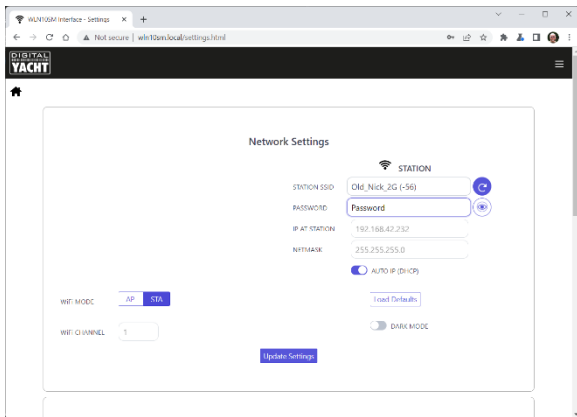


Figure 5

From here you can scan for and select the wireless network you want the WLN10SM to connect to and enter the wireless password of this network – click the “Eye” icon to view the hidden password.

By default, the WLN10SM will automatically get an IP address from the wireless network it connects to (this will be displayed “greyed out” in the IP box). If you want to control the IP address WLN10SM has on the network, turn off “Auto IP” and enter fixed IP address settings

Once you have made all the changes, click the “Update Settings” button to apply the changes and reboot the WLN10SM. After about 20 seconds, WLN10SM will reboot and join the selected network. It’s “Status” LED will initially flash but then stay ON if it has successfully joined the network.

If WLN10SM cannot find the selected network or you have entered the wrong password, the “Status” LED will stay OFF, with just a short flash every two seconds to indicate that it is trying to connect but failing. If after 3 attempts (30 seconds) it cannot connect to the selected network, WLN10SM will temporarily return to AP mode, so that you can connect and change the settings.

Alternatively, you can press and hold the Reset button for 10 secs or more, to reset the WLN10SM to factory defaults.

Assuming that the WLN10SM has successfully joined the other network, it will now have a different IP address and you will have to access its web interface by going to <http://wln10sm.local>

Now in the Settings page you can see the wireless network and password boxes outlined in Green, to indicate that the connection has been successful. The IP address shown is the address that the WLN10SM has on the new network (Fig 6).

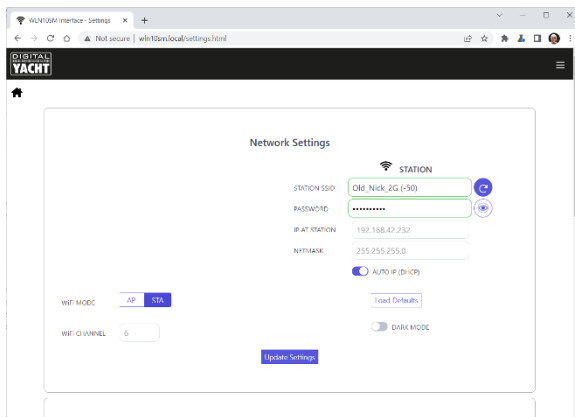
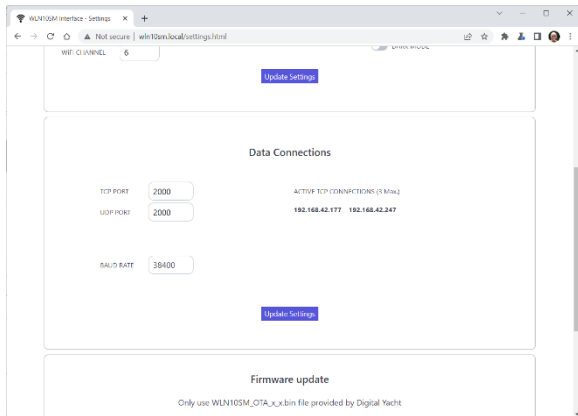


Figure 6

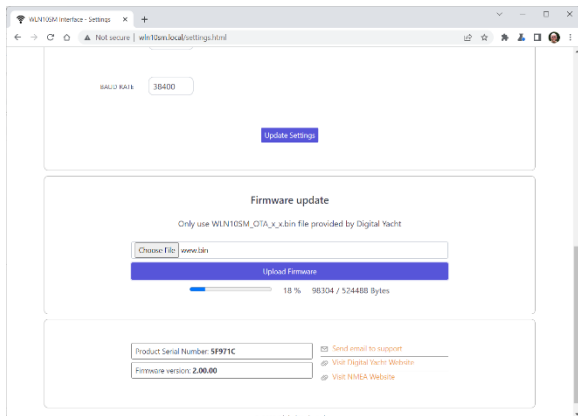
Scroll down the Settings page and you will see the Data Connections section where you can change the TCP and UDP port numbers (not recommended) and also see any active TCP connections (up to 3 allowed) with the IP address of the devices (Fig 7).

Also in this section you can change the baud rate of NMEA 0183 interface of the WLN10SM (this changes both Input and Output baud rate). Standard NMEA 0183 is 4800 baud, while High Speed NMEA 0183 for AIS is 38400 baud. The WLN10SM can also operate at non-NMEA 0183 baud rates; 9600, 14400, 19200, 57600 and 115200 in case of a special serial data format application.



*Figure 7*

If you continue to scroll down to the bottom of the page, you will see the Firmware update and About sections – see Fig8.



*Figure 8*

Firmware updates are fairly infrequent but if Digital Yacht publish any critical or useful updates, you can upload the update file via the web interface. Click on the **Choose File** button and browse for the binary update file. Once selected, click the **Upload Firmware** button and the WLN10SM will display a percentage progress bar as the update is being done.

Once the update is complete, an “Update Successful” pop-up window should appear and the unit will reboot. Allow 20 seconds before trying to re-connect.

Finally, at the bottom of the Settings page is the About section, where the product serial number and current firmware version are displayed. You maybe asked for this information if you contact Digital Yacht for support.