



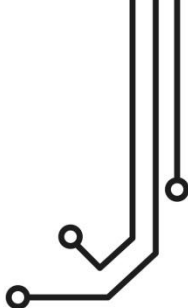
SAIL BOAT



SPORT FISHING



MOTOR BOAT



# WLN30 SMART WIRELESS NMEA MULTIPLEXER

Installation and instruction Manual



## 1. Introduction

Congratulations on purchasing your Smart Wireless NMEA Multiplexer.

This product replaces our original WLN20 product 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 Multiplexer (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 Multiplexer you 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 Multiplexer is IP54 rated (water resistant) and must be installed below deck in a dry location. When locating the unit consider:

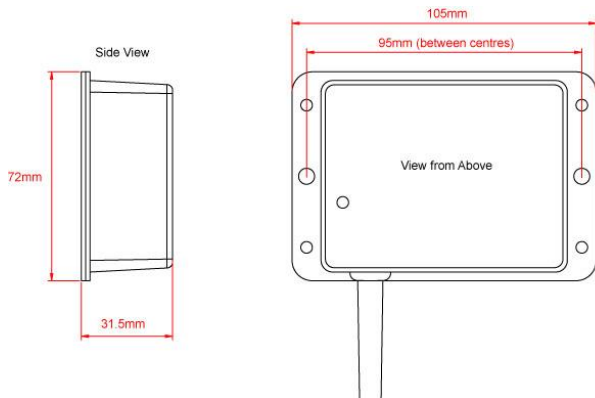
- Routing of power and NMEA0183 data cables to the unit.
- Sufficient space around the unit for cable connections.
- Maintaining the compass safe distance of 0.5m.
- Best location for Wi-Fi reception i.e. not inside a metal enclosure

#### Installation Step 1 - Cabling

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

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

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



### Installation Step 3 – Powering the WLN30

- 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;

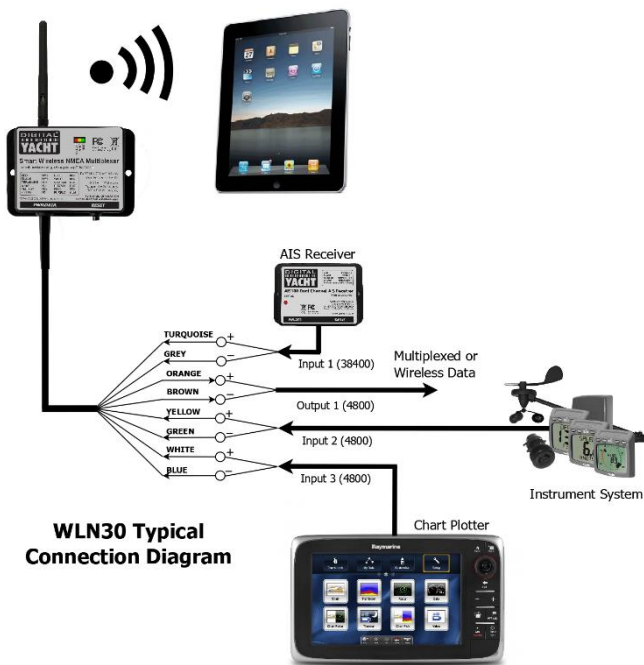
Condition	Red LED	Yellow LED	Green LED
ON (Solid)			TCP Connection
Fast Blink	No wireless connection	Data	
Slow Blink		Data	UDP Connection
OFF	Wireless device connected	No Data	No Power

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

### Installation Step 4 – Interfacing (NMEA)

- The Smart Multiplexer 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 Multiplexer to two wire and single wire NMEA devices;



- By default, the Smart Multiplexer Port 1 is set to 38400 baud, while Port 2 and 3 are set to 4800 baud, but they can all be changed via the WLN30's built-in web interface

## Installation Step 5 – Wireless Interfacing

- By default, the Smart Multiplexer'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 “**DY-WiFi-xxxx**” where xxxx is the unique four-digit code of your device.

- To connect to the Smart Multiplexer, you will need 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 Multiplexer can transmit wireless NMEA data using two different network modes; either TCP (single device connection) which is the default mode or UDP (multiple device connection).
- Using UDP mode, can be configured in the smart web interface.
- Once your mobile device is wirelessly connected to the Smart Multiplexer, 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 Smart Multiplexer transmits data;  
**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.

## 4. Normal Operation

The Smart Multiplexer 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.

If you have a problem connecting wirelessly to the Smart Multiplexer, press and hold the Reset button for 1-2 seconds and try connecting again. In busy marinas with high levels of wireless activity, getting a reliable connection to the Smart Multiplexer may be difficult, but once underway (at sea) a strong and reliable connection will be achieved.

If you have other wireless devices on board that create their own wireless networks, use the Wi-Fi Channel selection option in the Smart Web Interface to use a different Wi-Fi Channel to the other devices.

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

## Using the Smart Multiplexer’s Web Interface

Any device, wirelessly connected to the Smart Multiplexer, can access its web interface by typing <http://192.168.1.1> in the browser’s address bar.

The screenshot shows a web browser window with the address bar displaying `192.168.1.1/network.cgi`. The page title is "WLN30 Device Configuration" and features the "DIGITAL YACHT" logo. The interface is divided into several sections:

- Network Settings**
  - Networking Mode:** Radio buttons for "Access Point" (selected) and "Station".
  - Local Wifi AP SSID:** Fields for SSID (DY-WIFI-02D1), Password (PASS-02D1), and Wifi Channel (1).
  - Local Network:** Fields for Local IP (192.168.1.1) and Local Port (2009).
- Communication Settings**
  - Ports:** Three columns for Port 1, Port 2, and Port 3, each with radio buttons for 4800 and 38400.
  - Mode:** Radio buttons for "TCP" (selected) and "UDP".
  - NMEA Output:** Radio buttons for "Multiplexed" (selected) and "Wireless".
  - A "View Data" button is present.
  - An "Update Settings" button is at the bottom of this section.
- Sensor and Alarm Settings**
  - Alarm:** Radio buttons for "Alarm Disabled" (selected), "Alarm for 1 seconds if sensor < 20 volts for 5 seconds", and "Alarm for 1 seconds if sensor > 20 volts for 5 seconds".
  - Sensor Voltage:** A digital display showing "0.0".
  - An "Update Settings" button is at the bottom of this section.
- Firmware update**
  - A "Choose file" button with the text "No file chosen" next to it.
  - An "Upload Firmware" button.
  - At the bottom, it displays "Firmware Version 1.31 - Serial Number 8E02D1 - Copyright Digital Yacht Limited 2018".

From the Web Interface you can configure all the Smart Multiplexer features.

### 1. Networking Mode

- In Access Point mode, the Smart Multiplexer creates its own wireless network with the name, password, IP address, Port and Wi-Fi channel you select. If you leave the Password box blank, it will create an “Open” unprotected network.
- In Station mode, the Smart Multiplexer will try to join another wireless network whenever it powers up. The network can be selected from a drop down list and if it is password protected, enter the correct password in the password box.

### 2. Communication Settings

- Set Baud rate to Standard **4800** or High Speed **38400** for each of the three ports
- Set the communication protocol to **UDP** or **TCP**
- Set Port 1 NMEA Output to output the Multiplexed data (38400) or Wireless App data (4800)

### 3. Firmware Update

- The firmware of the Smart Multiplexer can be updated using web interface, simply click the “Choose file” button to browse your device for the firmware update file and then once selected, click the “Upload Firmware” button

After changing any of the settings on the Web Interface, click the “Update Settings” button to save and apply your changes. If the changes, you alter the networking, then the Smart Multiplexer 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 Smart Multiplexer to factory defaults by pressing and holding the Reset button for 10 secs or more.

For diagnostic purposes, you can view the received NMEA0183 data by clicking the “View Data” button which opens a new browser tab displaying the raw NMEA0183 data received.

