WINDSENSE WIRELESS WIND SYSTEM

Installation and instruction Manual

1. Introduction

Congratulations on the purchase of your WINDSENSE Wind System. It is recommended that this product is installed by a professional, marine electronics engineer. The WINDSENSE system consists of two components; WINDSENSE Wireless box and the WND100 Mast Head Unit (Wind Transducer). This manual should be read in conjunction with the WND100 manual which was included in your package.

ⓘ **Installation of the Wind Transducer should only be conducted when the mast is down.**

2. Before you start

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

- The WINDSENSE Wireless box (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).
- A 1A inline fuse (not supplied)

To display the wind data, you will need a suitably compatible Mobile App for your iOS or Android phone/tablet or a Navigation Program for your personal computer that can receive wireless NMEA wind data.

3. Installation

The WND100 Wind Transducer should be installed as detailed in the WND100 Quick Start Guide, supplied with the WINDSENSE system. The WINDSENSE wireless box is water resistant to IP65 and can be mounted on deck or below deck in a dry location. Avoid mounting the unit in a location where the unit could become completely immersed in water.

When locating the unit you should consider:

- Routing of power cables to the unit.
- Provision of sufficient space around the unit for cable connections
- Routing of NMEA data connections to/from the NMEA 0183 device.
- Maintaining the compass safe distance of 0.5m.
- Best location for Wifi reception i.e. not inside a metal enclosure or fixed to a metal bulkhead

Installation Step 1 – Cabling

- Run 12v or 24v power connections to the WLN20
- Run the NMEA 0183 interfacing cables to the WLN20
- Do not make any connections yet

Installation Step 2 – Mounting the WINDSENSE

- Use suitable fixings (not supplied) to fix the WINDSENSE to a flat surface using the dimensions and details shown in the drawing below. Note that the unit may be installed in any orientation.
- A central location is recommended to maximise Wi-Fi reception in all areas of the boat.
- It is good practice to check the Wi-Fi reception of the WINDSENSE from your wireless phone/tablet before securing the unit in its final resting place.
- The WINDSENSE wireless box dimensions are shown on the next page. With the WND100 connector/cable fitted, you need to make sure you have enough height above the unit for the cables to be routed without undue bending or pressure.

DIMENSIONS

UNIT DEPTH = 38mm but allow 100mm depth for Power/Data cable and WND100 connector

With the WND100 connector fitted you will need about 100mm of depth to avoid placing any unwanted tension or pressure on the cable.

Installation Step 3 – Powering the WINDSENSE

- Provide power connections to the unit. Power is connected to the multi-core PWR/DATA cable on the Red and Black wires. Red wire is the positive (+) connection, Black wire is the negative (-) connection.
- Connect the stripped wires to the nearest source of primary 12V or 24V DC power. Ensure that the supply is connected via a 1A fuse (not supplied) or suitable circuit breaker. The fuse should be fitted in the positive power connection to the unit if necessary.

Installation Step 4 – Interfacing (NMEA)

- The WINDSENSE device has two fully bi-directional NMEA0183 Ports, one is dedicated to the WND100 and has a four way threaded connector (IP67 rated), which should be plugged in and fully screwed down (finger tight).
- By default the WND100 outputs the MWV sentence at 5Hz.
- The second WINDSENSE NMEA0183 port is wired to the 6 way Power/Data cable. This second port defaults to 4800 baud and can be used to get additional instrument or navigation data to your wireless device. Any NMEA0183 data received on this port is multiplexed (merged) with the Wind data and wirelessly transmitted to any mobile device connected to the WINDSENSE wireless network.
- The NMEA0183 Output has two modes, depending upon what Baud rate it is set to.
    - At 4800 baud – The WND100 Wind data + Autopilot data received wirelessly from an App on the mobile device are output at 4800 baud.
    - At 38400 baud - , The WND100 Wind data + Any NMEA0183 data received on the 38400 baud input + Autopilot data received wirelessly from an App on the mobile device are output at 38400 baud.
- Some typical WINDSENSE installations are shown on the next page.

Installation Step 5 – Configuring the NMEA0183 Port Baud Rate

To configure the WINDSENSE's NMEA0183 port, press and hold the "Align" switch on the front of the unit as it powers up. When you see the Green and Red LEDs flash, release the "Align" button. Press the "Align" button again within 4-5 seconds and the Yellow "WIND" and "NMEA" will illuminate. The "WIND" LED will be ON to indicate that it cannot be changed, while the "NMEA" LED will slowly flash four times to indicate that it is in the slower 4800 baud mode.

Press the "Align" button again and this time the "NMEA" LED will flash 8 times in quick succession to indicate that you have selected the faster 38400 baud mode. You can continue to press the "Align" button to toggle between the two modes and once you have selected the mode you want, do not touch the "Align" button for about 4-5 seconds.
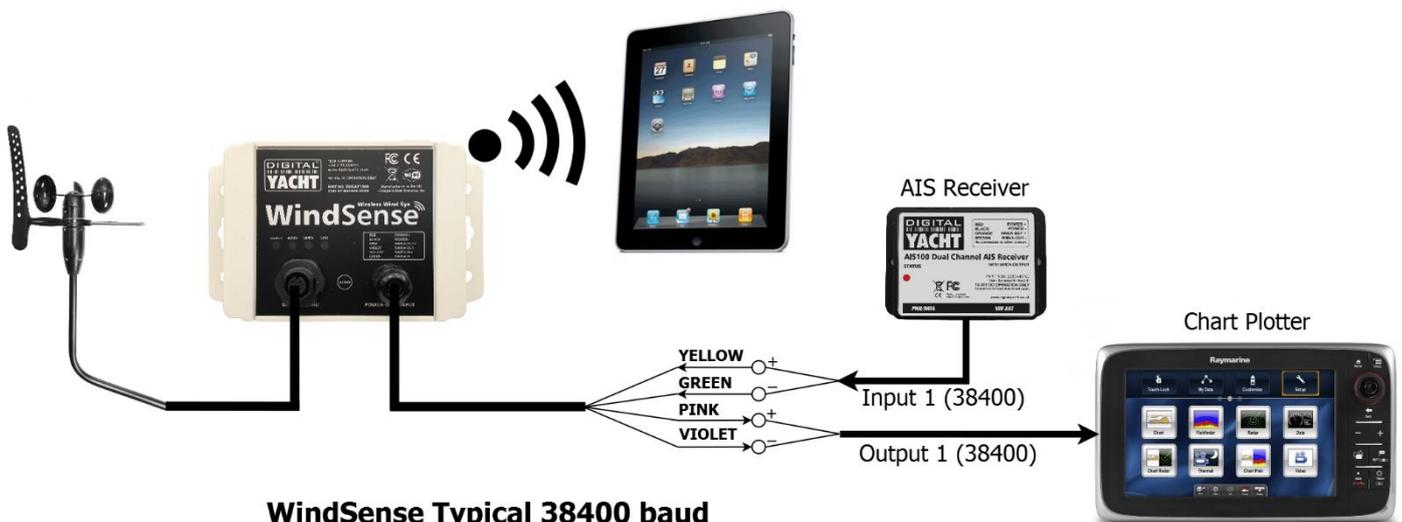
After 4-5 seconds, the "WIND" and "NMEA" LEDs will alternately flash in quick succession and then the light sequence for the mode you selected will appear again, before the WINDSENSE saves the new mode selection and returns to normal operation.

TYPICAL INTERFACING
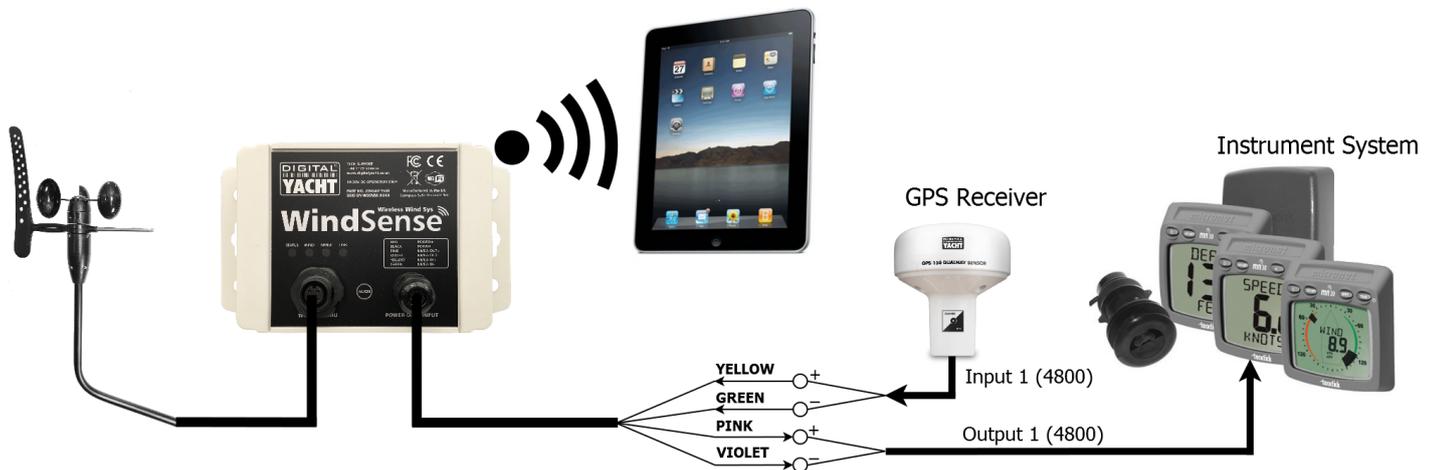
**WindSense Typical 4800 baud
Connection Diagram**

**WindSense Typical 38400 baud
Connection Diagram**

Installation Step 6 – Applying Power

Apply power to the WINDSENSE and you should see the four LEDs start to illuminate or flash. The following table shows what each LED indicates;

Condition	Red LED "STATUS"	Yellow LED "WIND"	Yellow LED "NMEA"	Green LED "LINK"
ON (Solid)				TCP/IP Connection
Fast Blink	No wireless connection	Data	Data	
Slow Blink		Data	Data	UDP Connection
OFF	Wireless device connected	No Data	No Data	No Power

Installation Step 7 – Wireless Interfacing

- WINDSENSE has an integrated 802.11b+g wireless adaptor which creates a wireless hotspot on-board your boat. The SSID (name) of the wireless hotspot that WINDSENSE creates will be "DY-WSENSE-xxxx" where xxxx is a four digit code unique to your WINDSENSE.
- To connect to WINDSENSE, simply scan for wireless hotspots on your wireless device. The exact procedure will vary from device to device so consult the user manual for your device to understand how to connect to a wireless hotspot.
- The WINDSENSE can transmit wireless NMEA data using two different network protocols; either TCP (single device connection) or UDP (multiple device connection). The program or application on the wireless device must support data reception via TCP or UDP in order to work correctly.
- Once you have wirelessly connected your mobile device to the WINDSENSE, you will need to run the application on your mobile device that accepts NMEA data over a TCP or UDP connection.
- The IP address and port that the WINDSENSE 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.
- You should now be able to receive data wirelessly from the WINDSENSE.

If you wish to connect multiple devices to the WINDSENSE, then all devices must use UDP mode. If the first device to connect is set to TCP mode then no other devices will be able to connect

4. Normal Operation

WINDSENSE is designed to send its data to a suitable mobile App or Navigational Software that can receive TCP/UDP data. Most modern apps do support one or both, of these protocols, and we have lists of popular Marine Apps for iOS and Android on our blog http://digitalyacht.net

If you do not already have a compatible App, we recommend testing the system to make sure everything is working, with our free iAIS app for iOS devices or our new WindSense app for Android.

Whichever App you use, you will need to set it up to read TCP data on **192.168.1.1** Port **2000** or UDP data on Port **2000**.

Once you have wind data displayed on your app, you will probably want to align the WND100 with the center line of the boat. However careful you are in mounting the WND100 to be perfectly parallel with the center line of the boat, it is often the case that a small 1º or 2º offset is present. WINDSENSE can remove this offset in software and in order to do this, you need to follow the simple procedure below;

Aligning the WND100 Mast Head Unit

- If you are seeing an offset error on the WND100 Mast Head Unit, bring the vessel round so that you are sailing directly in to the wind and if the Wind Angle display is not showing the wind as being 0º, give a short press of the "Align" button.
- Now the Wind Angle should be showing 0º and the offset error will be removed from all future readings.