

IMPORTANT NOTE

Your iSeaSense has a WiFi network name “iSeaSense-xxxx” where **xxxx** is your unique 4 digit code. The default Password = “PASS-xxxx”, where **xxxx** is the same unique four-digit code at the end of the WiFi network name.

To access the web interface, <http://192.168.1.1> or <http://iSeaSense.local>

iSeaSense NMEA 2000 Instrument System

Installation and instruction Manual



1. Introduction

Congratulations on the purchase of your iSeaSense Wireless NMEA 2000 Instrument System. In addition to this quick start guide, we recommend watching our iSeaSense video, simply scan the QR code to be taken to our YouTube video....



This product is designed for use by Dealers and End Users with knowledge/experience of NMEA 2000, Digital Yacht cannot provide technical support or training on NMEA 2000 networking.

2. Before you start

To use your iSeaSense you will need:

- A wireless device with web browser i.e. Smart Phone, Tablet or Laptop
- A suitable number of spare “T-Piece” connections on a working/powerd NMEA 2000 network.

If you have purchased an iSeaSense pack, then you should also read the manuals or information sheets included with the sensors/transducers.

3. Installation

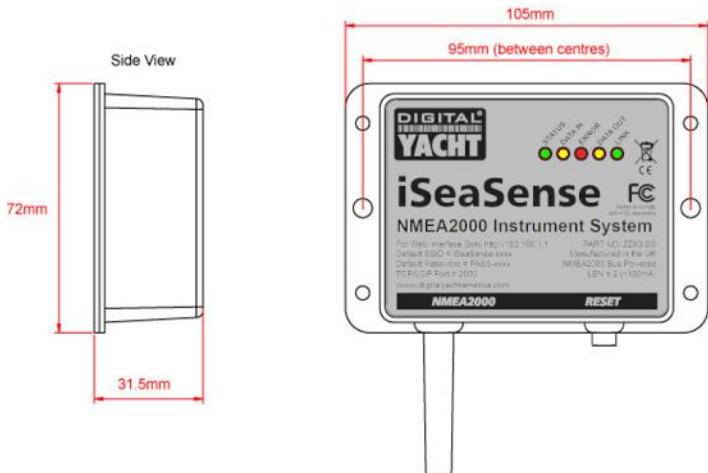
The iSeaSense is IP54 rated (water resistant) and care should be taken when installing it, to ensure it is never submerged in water.

3.1 – Connecting to the NMEA 2000 Network

- Connect the iSeaSense cable, to a spare NMEA2000 network connector.
- If you are also installing a DST810 Speed, Depth and Temperature transducer, you will need to connect this to a second spare NMEA2000 network connector.
- Both iSeaSense (LEN=2) and the DST810 (LEN=3) take their power from the NMEA2000 network, so no additional connections are necessary.
- If you are connecting iSeaSense to a non-standard NMEA2000 network, then a suitable adaptor cable will need to be sourced from the manufacturer;
 - > SeaTalkNG (Raymarine P/No A06045)
 - > Simnet (Simrad P/No 24006199)

3.2 – Mounting and Location

- Install iSeaSense to a flat bulkhead using suitable fixings.
- iSeaSense can be installed in any orientation.
- A location should be chosen for best WiFi performance, i.e. central location on the boat with minimum metallic obstructions



3.3 – Powering iSeaSense

- Apply power to the NMEA 2000 network. iSeaSense's LEDs will flash once and after a few seconds the Status and Data LEDs will illuminate, as per Table 1...

Condition	STATUS LED (Green)	DATA IN LED (Yellow)	ERROR LED (Red)	DATA OUT LED (Yellow)	LINK LED (Green)
ON (Solid)	Wi-Fi STA Mode Connected		System Error		Web Connection
Flashing	Wi-Fi AP-Mode Active	Data Received	Data Error	Data Transmitted	
OFF	Wi-Fi STA Mode Disconnected*	No Data From N2K	All OK	No Data To N2K	No Web Connection

Table 1

* **Note** – Short flash every 2 seconds indicates iSeaSense cannot connect in STA Mode, check wireless network is visible and password is correct.

3.4 – Setting up the Wireless Network

- By default, iSeaSense creates a wireless network (Access Point), with Name (SSID) = “**iSeaSense-xxxx**” and Password = “**PASS-xxxx**”, where xxxx is a four-digit code, unique to your device.
- To connect to iSeaSense you need to scan for wireless networks, find it, select it and then enter the default password when prompted.
- iSeaSense currently only supports WPA2 wireless security, not the latest WPA3, so some devices including Apple iOS devices will report that the iSeaSense has “Weak Security” but this is normal and not a cause for concern.
- iSeaSense is not a router or internet gateway, so when you are wirelessly connected to it, you will not be connected to the internet and your operating system; Windows, iOS, Android, etc. may display a “No Internet” warning. Again this is perfectly normal and not a cause for concern.
- **IMPORTANT NOTE** - Multiple devices can connect to iSeaSense and display the web pages in their browser, but after a settings change, you must refresh the other browser sessions for the new settings to be applied.

3.5 – Accessing the Web Interface

- The iSeaSense has a built-in web interface, consisting of a series of pages that allow you to monitor and display any Instrument and Navigation data available on the NMEA 2000 network.
- A wireless device, connected to iSeaSense, can access its web interface in a browser at <http://192.168.1.1> or <http://iSeaSense.local> which should bring up the iSeaSense home page as shown in Figure 1.

- When there is an active web browser session in progress, the Green LINK LED on the iSeaSense unit will be ON.

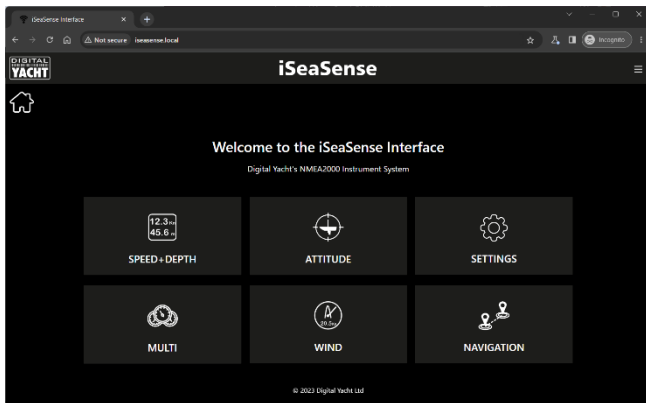


Figure 1

4. Operation

By default, iSeaSense has a series of pre-defined pages that display digital “Databoxes” and analogue “instruments” of the instrument and navigation data available on the NMEA 2000 network. If the data for a particular Databox or Instrument is not present they will be displayed with a series of bars ---- or N/A.

The pages are fully editable, allowing you to change, hide or add databoxes and instruments, to match the available data on your NMEA 2000 network and your preferred page layouts and combinations of data.

A list of the NMEA 2000 PGNs that iSeaSense supports are listed in Appendix A.

4.1 – Speed+Depth Page

On the Home page, click the SPEED + DEPTH button and the page in Fig 2 will be displayed



Figure 2

Each databox can be edited to show different data, be hidden from view (if no data available) or in some cases be calibrated/reset. To edit a databox, click the “Padlock” icon. The icon will now change to an open padlock and a series of “Spanner” icons will appear in the centre of each databox – see Figure 3.

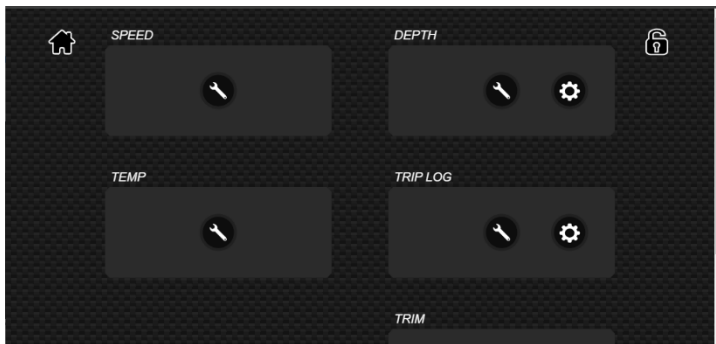


Figure 3

Click on the Spanner Icon of the databox you wish to edit and a Databox Configuration pop-up window will appear (see Fig 4).

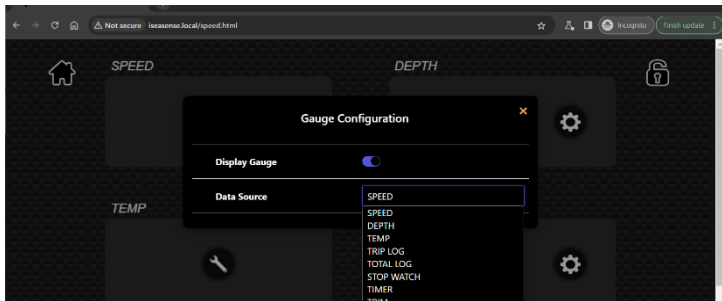


Figure 4

If you wish to change the gauge to display different data, click on the drop down “Data Source” and select the data you want. Once selected, you can close the pop-up, click on the Padlock icon and see the change.

To add additional databoxes to the page, click the Padlock icon and then scroll down the page and you will see four additional Spanner icons. Each one can be clicked on and a new databox setup by selecting the data you wish it to display.

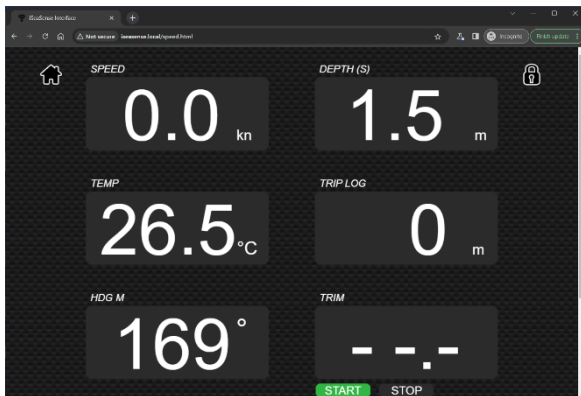


Figure 5

As you can see in Fig 5 above, a Heading Magnetic and Trim databox have been added to the page.

To calibrate the Boat Speed, change the Depth or reset the Trip Log, you should click on the Padlock icon, then for any databox that can be calibrated or reset, there will be a Cog Wheel icon shown next to the Spanner Icon. Click the Cog Wheel icon and follow any on screen instructions.

4.2 – Attitude Page

The Depth/Speed/Temp transducer that is supplied with the iSeaSense Power and Sail packs, includes a Pitch and Roll sensor that can display the heel angle of the boat when tacking or turning and the pitch of the boat as you go up and down the waves.

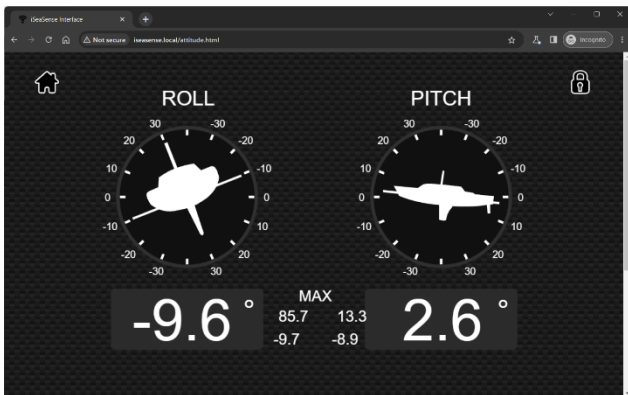


Figure 6

Maximum values are displayed below the instrument displays, which you cannot change, but you can calibrate the Attitude sensor to remove any offsets if the transducer was not installed 100% vertically. Click the Padlock icon, then click the Cog Wheel icon in the center of the screen and then follow the on screen instructions.

It takes about 5 seconds to calibrate the Pitch and Roll Sensor, during which time a short animation will occur and then the “zeroed” values will be displayed. Once complete, click the Padlock icon and you will be taken back to the Attitude page.

4.3 Multi Page

The Multi page is a general purpose page where you can configure eight databoxes with any of the available data on. The Speed + Depth page limited the choice of data to instrument data, but on the Multi page you can combine that data with GPS and Navigation data to make whatever page content you want.

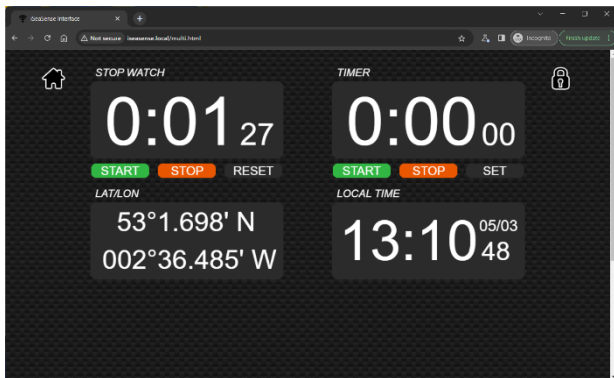


Figure 7

Fig 7 shows the four default Multi databoxes but these can be edited and added to as detailed in Section 4.1

4.4 Wind Page

The Wind page (see Fig 8), by default, displays two analogue instruments; a 360° Apparent Wind instrument and a Close Haul “magnified wind angle” instrument. Below them are two digital databoxes; Boatspeed and VMG (into wind). As with the other pages, the data shown in the databox can be changed and you can also change the analogue instruments to show True Wind.

Click the Padlock icon to edit the page and if you change the Apparent Wind instrument to True Wind, the Close Haul instrument will also change to show magnified True Wind angle. If True Wind data is not available on the NMEA 2000 network, iSeaSense will calculate it from the Apparent Wind and Boatspeed data.

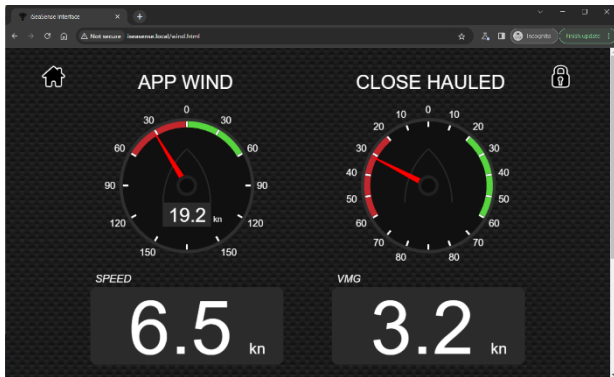


Figure 8

4.5 Navigation Page

The Navigation page takes Next Waypoint data from a GPS or MFD on the NMEA 2000 network and displays databoxes and a cross track error bar as shown in Fig 9.

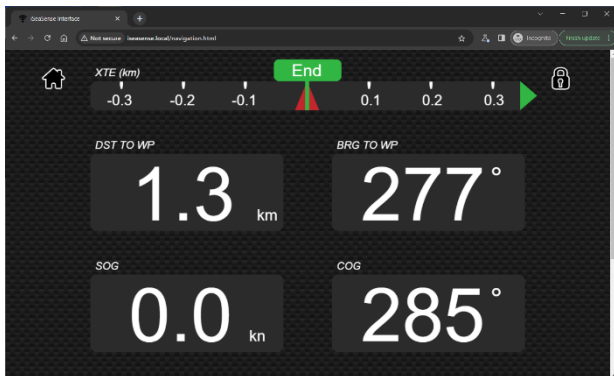


Figure 9

The cross track error (XTE) bar shows the next waypoints name in the green “flagpole” icon in the middle of the bar and a red “boat” icon that moves as you drift off course, relative to the track you need to follow, A green or red arrow at the end of the bar will indicate the direction you need to steer to get back on track.

As with the other pages, the databoxes can be edited and added to as detailed in Section 4.1

4.6 Settings Page

Click the “Settings” button on the Home Page. Available settings include....

- Network settings – whether iSeaSense creates its own wireless network (default) or joins another wireless network on the boat
- Ports Setting – the Port number (default = 2000) that iSeaSense uses for UDP and TCP connections (Fig 13)
- Units Settings (Fig 14)
- NMEA 2000 Device List (Fig 15)
- Firmware Update and About Information (Fig 16)

By default, iSeaSense operates in Access Point (AP) mode and creates its own wireless network with a default name and password. You can change the network name and wireless password as shown in Fig 11.

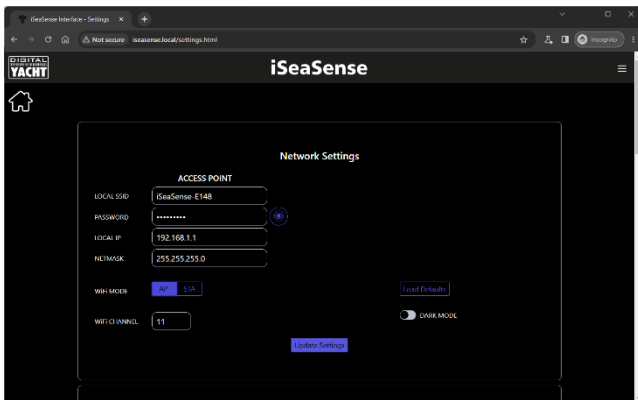


Figure 11

Any wireless network changes must be saved by clicking the “Update Settings” button. A confirmation pop-up will appear saying that the settings have been applied and that iSeaSense will reboot within 20 seconds.

If you want iSeaSense to join an existing wireless network, click the Station (STA) button, select the wireless network from the drop down list and enter the wireless password. Click the “Update Settings” button and after iSeaSense reboots, it should join the selected network – Status LED will be ON.

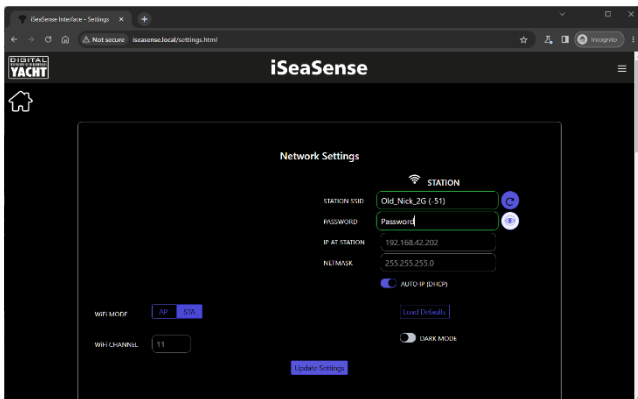


Figure 12

If the Status LED is OFF with a short flash every two seconds, then iSeaSense has failed to connect to the selected network. Wait 30-45secs for iSeaSense to revert to AP mode or press and hold the reset button for >10secs for a factory reset.

Also in this section is the “Dark Mode” switch which switches to a red on black design for better night vision.

As well as displaying Instrument data, iSeaSense outputs GPS, Depth and AIS wireless NMEA data as supported by popular mobile Apps like Navionics Boating.

By default, iSeaSense will allow apps to connect using UDP or TCP protocol, on Port 2000. Up to 3xTCP connections and 7xUDP connections are supported at the same time, with no need to select which protocol to use.

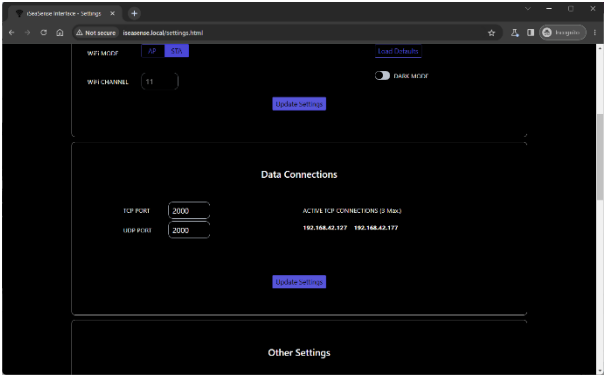


Figure 13

As a TCP connection is made, the IP address of the connected device is displayed.

The only reason to change the Port settings from the default 2000, is if that port is being used by another device. In this case change the value as shown in Fig 13.

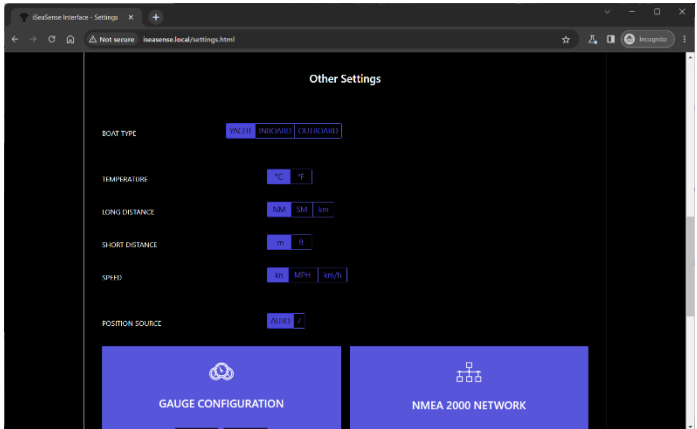


Figure 14

By default iSeaSense is configured to display European Metric Units, all of which can be easily changed in the Other Settings section as shown in Fig 14. As a unit is changed, it will be immediately applied and you do not need to save the changes.

Also in this section is the Boat Type setting; Sail, Inboard or Outboard and this setting just changes the boat shape image in the Attitude instruments.

Once you have the iSeaSense settings and pages setup to your requirements, it is recommended that you take a Backup of the configuration, so that you can easily restore everything after a firmware update or factory reset.

Clicking the “Backup” button in the Gauge Configuration panel (see Fig 15), prompts you to name and set the file location of the backup file. Should you ever need to restore the iSeaSense to this backed up configuration, simply click the “Restore” button and browse to and select the backup file.

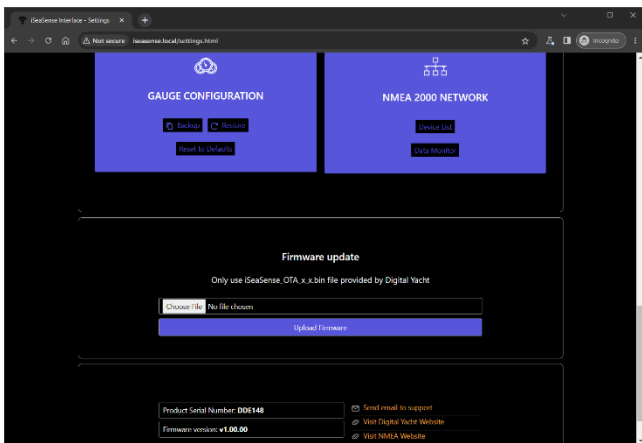


Figure 15

Also included on the Settings page, is a “Device List” button that is useful for seeing what other devices are on the NMEA 2000, what CAN Address they have, etc. Clicking this button takes you to the page shown in Fig 16.

ADDR	MANUFACTURER	CAN NAME	DIN	CLASS	FUNCTION
100	Digital Yacht	48e1bd36008932c0	0	Inter/Intranetwork Device	NMEA 2000 Wireless Gateway
0	Vetus Maxwell INC.	e6ffa083008a32c0	0	Unknown	Unknown
1	Vetus Maxwell INC.	e6ffa083059164c0	0	Propulsion	Thruster Engine
2	Vetus Maxwell INC.	e6ffa083039064c0	0	Propulsion	Motor
3	Vetus Maxwell INC.	e6ffa08304aa46c0	0	Electrical Generation	Battery
6	Digital Yacht	0700a036008732c0	0	Inter/Intranetwork Device	NMEA 0183 Gateway
36	Victron Energy	f501c02c02a046c0	0	Electrical Generation	Power Converter Battery Charger
224	Victron Energy	f501c02c01aa46c0	0	Electrical Generation	Battery

Figure 16

At the bottom of the Settings page (see Fig 17), are details of iSeaSense's Firmware version. We try to avoid firmware updates but sometimes it is necessary to fix a bug or add an important new feature. You can refer to the version number here to see what firmware your unit is running and then check on Digital Yacht's support website to see if there are any updates.

The screenshot shows the 'Settings' page of the iSeaSense interface. It features a dark background with blue and white text. The 'GAUGE CONFIGURATION' section includes buttons for 'Linkup', 'Reset', and 'Return to Defaults'. The 'NMEA 2000 NETWORK' section has buttons for 'Device List' and 'Data Monitor'. The 'Firmware update' section contains a file selection area with a 'Choose file' button and an 'Update Firmware' button. At the bottom, there are input fields for 'Product Serial Number' (displaying '00E14B') and 'Firmware version' (displaying 'v1.00.00'), along with links for 'Send email to support', 'Visit Digital Yacht Website', and 'Mail NMEA Website'.

Figure 17

The iSeaSense firmware can be updated very easily from the web interface. Simply download the latest update (BIN file), click the **Choose File** button and browse to your download location. Select the update file and click the **Update Firmware** button. The update takes about 10-20 seconds and at the end you should see an Update Successful pop-up window appear.

This Quick Start Manual just covers the very basic operation of iSeaSense. A more detailed description is provided in our training videos. Simply scan the QR code and be taken straight to our YouTube video.



Appendix A- iSeaSense NMEA 2000 PGN Support

In addition to the mandatory NMEA 2000 network management PGNs, iSeaSense can receive and transmit the following PGNs.

Received PGNs

127250	Vessel Heading
127257	Attitude
128259	Speed, Water Referenced
128267	Water Depth
128275	Distance Log
129025	Position, Rapid Update
129026	COG & SOG, Rapid Update
129029	GNSS Position Data
129038	AIS Class A Position Report
129039	AIS Class B Position Report
129040	AIS Class B Extended Position Report
129041	AIS Aids to Navigation (AtoN) Report
129283	Cross Track Error
129284	Navigation Data
129793	AIS UTC and Date Report
129794	AIS Class A Static and Voyage Related Data
129798	AIS SAR Aircraft Position Report
129802	AIS Safety Related Broadcast Message
129809	AIS Class B "CS" Static Data Report, Part A
129810	AIS Class B "CS" Static Data Report, Part B
130306	Wind Data
130312	Temperature - DEPRECATED
130316	Temperature, Extended Range

Transmitted PGNs

126993	Heartbeat
126996	Product Information
126998	Configuration Information

For more information about NMEA 2000 scan this QR Code to be taken to our NMEA 2000 Networking Guide

