



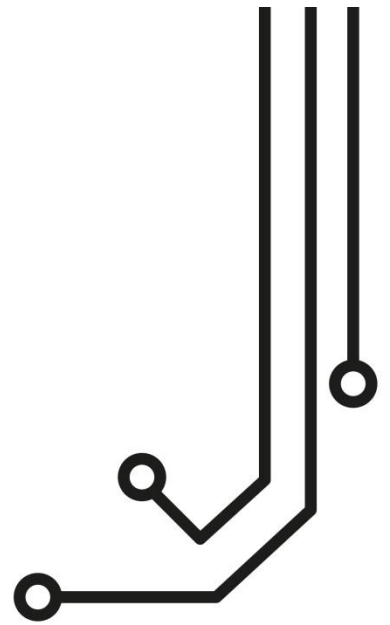
SAIL BOAT



SPORT FISHING



MOTOR BOAT



ⓘ IMPORTANT NOTES

By default, your AIT6000 AIS Transponder has a wireless network name (SSID) of “**AIT6000-XXXX**” where XXXX = your unique 4 digit code. The wireless password defaults to “**PASS-XXXX**” (all uppercase) and you will need to replace XXXX with your unique 4 digit code.

If you intend to permanently connect the AIT6000 to an onboard computer via USB, we recommend using our NMEA to USB Adaptor cable for extra protection against static discharges and supply voltage spikes.

AIT6000 CLASS B+ AIS TRANSPONDER

Installation and instruction Manual



1. Introduction

Congratulations on the purchase of your AIT6000 Class B+ AIS Transponder. It is recommended that your transponder is installed by a professional installer.

 **This manual will provide basic information on the AIT6000 to allow you to install and get the AIT6000 working, we suggest that you consult the manufacturer's user manuals for any other equipment that you will be connecting the AIT6000 to.**

2. Before you start

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

- AIT6000 Class B+ AIS Transponder.
- Dedicated VHF antenna and cable – not supplied
- Dedicated GPS antenna and cable - supplied
- Access to 12V or 24V DC power supply where the unit is to be installed.
- Four M4 screws or other fixings appropriate to the mounting location.

To configure the unit you will need:

- An MMSI number for your vessel
- A wireless mobile device such as a smart phone or tablet, which has a modern web browser like; Safari, Google Chrome, Firefox, Microsoft Edge, etc.

Note: *You can obtain an MMSI (Maritime Mobile Service Identity) from the same authority that issues ship radio licences in your area. An MMSI may have already been provided with your existing VHF radio licence. The MMSI number used for the AIS Transponder should be the **same** as that programmed into your VHF DSC radio.*

 ***If you do not have an MMSI number the AIS Transponder will operate in receive only mode. Do not enter an invalid MMSI number.***

3. Installation

Before starting installation select a suitable location for the AIS Class B+ Transponder. The unit is water resistant; however it should be installed below deck in a dry location. When locating the unit you should consider:

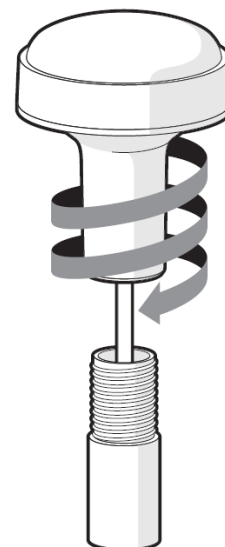
- Routing of power and antenna cables to the unit.
- Provision of sufficient space behind the unit for cable connections.
- Routing of data connections to PC or chart plotter from the unit.
- Maintaining the compass safe distance of 0.5m.
- Visibility of the front panel indicators.

Installation Step 1 - Antennas

- The AIT6000 has an integrated "Zero Loss" VHF antenna splitter that allows AIS reception/transmission through the boat's existing VHF antenna. A PL259 to PL259 link cable is supplied to allow connection between the AIT6000 and your VHF radio.
- Disconnect the boat's existing VHF antenna from the VHF radio and connect it to the VHF antenna connector on the AIT6000. Using the supplied PL259 link cable connect the VHF Radio Connector of the AIT6000 to your VHF radio.
- The VHF radio and the AIT6000 can both transmit and receive using the same antenna but they cannot transmit simultaneously, priority is always given to the VHF radio.



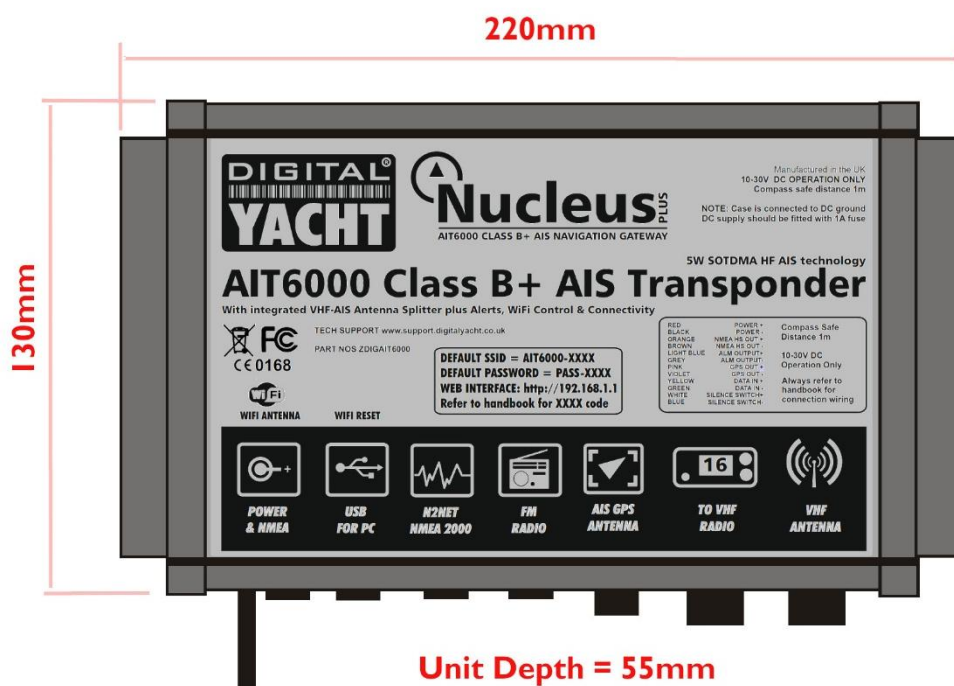
- The supplied GPS antenna is designed to be fitted to a standard 1"x14 TPI threaded VHF pole mount, which are available in many different styles from all good marine electronic dealers and chandleries.
- You should ensure the GPS antenna has a good clear view of the entire sky. It is not recommended that the GPS antenna is mounted up a mast where the motion of the vessel will cause the antenna to swing and potentially reduce the accuracy of the GPS position.
- Do not mount your antenna in the direct path of a radar transmitter.
- Feed the ten metre long cable attached to the GPS antenna, through the pole and screw the antenna onto the pole mount as shown.
- Route the cable to your AIT6000 unit, adding any necessary extension cables.
- Connect the cable from the GPS antenna to the GPS connector on the AIT6000. The GPS antenna is terminated in a threaded TNC type connector.



Installation Step 2 – Mechanical Fixings

- Access to the fixing holes is achieved by removal of the two green decal strips down each side of the AIT6000. Once fixed in place, the green decal strips can be clicked back in place.
- Secure the AIS Transponder to a flat surface in the selected location. Use four M4 wood screws or other fixings suited to the material the unit is being fixed to. The unit may be installed in any orientation

Dimensioned Drawing





Installation Step 3 - Power

- Provide power connections to the unit. Power is connected to the eight core PWR/DATA cable on the Red and Black wires. The Red wire is the positive (+) connection. The 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 3A fuse (not supplied) or suitable circuit breaker. Add the fuse in the positive power connection to the unit if necessary.
- The AIT6000 Class B+ Transponder is designed for 12V or 24v DC systems.

Installation Step 4 – NMEA 0183

- The AIT6000 can be connected to other AIS compatible equipment via the NMEA 0183 connections on the PWR/DATA cable, via the NMEA 2000 interface cable and/or to a PC via the USB interface.
- A table showing what each of the 12 wires of the PWR/DATA cable does is printed on the AIT6000 Transponder and repeated below for your convenience;

Wire colour	Description	Function
RED	Power in +	Power supply connections
BLACK	Power in -	
BLUE	Switch input-	External switch connection for silent mode
WHITE	Switch input+	
ORANGE	NMEA 0183 port 1 TX+	High speed NMEA 0183 output (38,400 baud) intended for connection to chart plotters
BROWN	NMEA 0183 port 1 TX-	
TURQUOISE	Sensor input+	0-30v sensor input
GREY	Alarm output+	Open Collector Alarm output – 0v Active
PINK	NMEA 0183 port 2 TX+	Low speed NMEA 0183 Output (4,800baud) intended for connection to other NMEA 0183 devices requiring a GPS feed. Note AIS data is not available on this output.
VIOLET	NMEA 0183 port 2 TX-	
YELLOW	NMEA 0183 port 2 RX+	Low speed NMEA 0183 input (4,800baud) intended for connection to other NMEA 0183 compatible sensors for multiplexing of data to the chart plotter
GREEN	NMEA 0183 port 2 RX-	

- The most common connection to a dedicated chart plotter is to take the NMEA Output 1 (Orange+ and Brown –) from the AIT6000 Transponder and to connect it to a free NMEA Input on the plotter. You must then tell the chart plotter that AIS data is connected to this port and set the baud rate to 38,400 Baud – the standard speed for AIS data. Consult the instruction manual supplied with your Chart Plotter to understand how this is configured.
- The AIT6000 has a second NMEA 0183 output that can be used to pass GPS data to a VHF radio or instrument system. NMEA Output 2 transmits GPS data at 4800 baud – RMC, GGA and GGL sentences.
- NMEA 0183 data from other equipment can be connected to either of the NMEA Inputs of the AIT6000, although this is most commonly connected to NMEA Input 2 (Yellow+ and Green-) at the normal 4800 baud rate for NMEA 0183. This data is then multiplexed with the AIS data and output on the NMEA Output 1 at 38,400 baud and also on the USB – useful when connecting to equipment that only has one NMEA input.



Installation Step 5 – N2Net (NMEA 2000)

- The AIT6000 has an N2Net connection which is Digital Yacht's NMEA 2000 compliant interface. To connect to other NMEA 2000 products, simply find or add a spare NMEA 2000 "T" piece on the existing NMEA 2000 network and connect the AIT6000 N2Net connector to the "T" piece.
- The N2Net cable is just under 1m long and is terminated in an NMEA 2000 Micro Male Connector.
- The AIT6000 does not take any power from the NMEA 2000 network
- The AIT6000 outputs AIS and GPS data on to the network. All currently defined AIS PGNs are transmitted including those for Class B+ Static Data, AIS Sarts and AIS AtoNs, which some chart plotters do not support.
- The AIT6000 does not convert any of the NMEA 0183 data that it receives into NMEA 2000 data.
- Below is a table showing the NMEA 2000 PGNs that the AIT6000 transmits and receives and the NMEA 0183 Sentences that it transmits wirelessly over TCP/UDP. NOTE – sentences marked with an asterisk (*) require suitable PGN data on the NMEA 2000 network, to allow conversion to NMEA 0183...

PGN	Title in NMEA 2000 database	Usage	NMEA 0183
59392	ISO Acknowledgment	in, out	
59904	ISO Request	in, out	
60160	ISO Transport Protocol - Connection	in, out	
60416	ISO Transport Protocol - Data	in, out	
60928	ISO Address Claim	in, out	
65240	ISO Commanded Address	in	
126208	Group Function	in, out	
126464	PGN List - Group Function	out	
126992	System time	out	
126993	Heartbeat	out	
126996	Product Information	out	
126998	Configuration Information	out	
127250	Vessel Heading	in	HDG*
128259	Speed (Water Referenced)	in	VHW*
128267	Water Depth	in	DPT*
129025	GNSS Position (Rapid update)	out	RMC
129026	GNSS Direction data (Rapid update)	out	RMC
129029	GNSS Position data	out	RMC
129038	AIS Class A Position Report	out	VDM / VDO
129039	AIS Class B Position Report	out	VDM / VDO
129040	AIS Class B Extended Position Report	out	VDM / VDO
129041	AIS AtoN Position Report	out	VDM / VDO
129793	AIS UTC and Date Report	out	VDM / VDO
129794	AIS Class A Static and Voyage Related Data	out	VDM / VDO
129795	AIS Addressed Binary Message	out	VDM / VDO
129796	AIS Acknowledge	out	VDM / VDO
129797	AIS Binary Broadcast Message	out	VDM / VDO
129798	AIS SAR Aircraft Position Report	out	VDM / VDO
129801	AIS Addressed SRM	out	VDM / VDO
129802	AIS Safety Broadcast Binary Message	out	VDM / VDO
129809	AIS Class B Static Data Report Part A	out	VDM / VDO
129810	AIS Class B Static Data Report Part B	out	VDM / VDO
130306	Wind Data	in	MWV*



Installation Step 6 – USB Interface

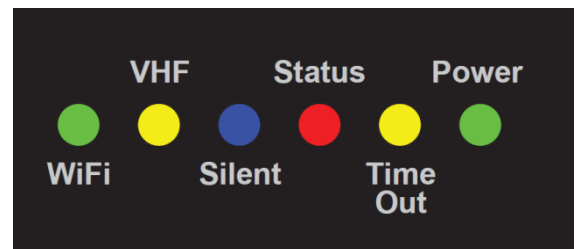
- The USB cable of the AIT6000 can be used for configuring/programming the unit during installation using the proAIS2 software for PC or Mac. However, the AIT6000 also features a new web interface that can be used for this purpose and which this Manual focuses on. If you want more information about configuring the AIT6000 using proAIS2, please visit <https://digitalyacht.net/2019/06/12/configure-an-ais-transponder/>
- If you intend to permanently connect the AIT6000 to a PC or MAC via a USB interface, we recommend that you use one of our NMEA to USB adaptor cables (P/No ZDIGUSBNMEA) which will protect the AIT6000 from voltage differences, noise and electrical spikes that can occur in marine installations.
- When connected to a PC or MAC via the USB cable, the AIT6000 will only get enough power from the computer to power the microprocessor and the AIS receiver. This allows you to program the MMSI number and other static data at home or in the office prior to installation. The AIT6000 will not transmit or get a valid GPS position fix when only powered from the USB interface and the RED Status LED will always be lit when powered from the USB cable.
- If you need to extend the USB cable, please use a USB extension cable that is no more than 4m in length. The maximum length of USB cable without the use of a powered extender cable or Hub is 5m.
- Please do not plug in the USB cable of the AIT6000 to your PC. We will cover this in section 4 - Configuration.

Installation Step 7 – Remote Switch

- To connect a remote “Silent” switch that allows you to turn on/off the transmission of your own vessels position (good etiquette when moored or in congested but safe conditions), you will need a conventional toggle type switch (SPST), connected between the White and Blue wires.
- This can be mounted anywhere on the boat, thus allowing you to mount the AIT6000 below deck but having a switch in the cockpit or wheel house to control the Silent Mode operation.
- When the remote “Silent” switch is ON (closed) the AIT6000 will be in Silent mode (not transmitting) and when the switch is OFF (open) the AIT6000 will be in normal transmitting mode.

Installation Step 8 – Power Up

- Turn on the 12V or 24v power to the AIT6000
- Verify that the Power LED flashes once and then the Silent, Status, Time Out and Power LEDs all flash once together and then the amber and red LED's should come ON.
- If the Wi-Fi is working correctly, then the Wi-Fi LED should be flashing green and solid green when a device has joined. If you scan for wireless networks on your wireless device you should see a wireless network called “**AIT6000-xxxx**” where **xxxx** is a four-digit code unique to your AIT6000.
- Make your device join this network and you will be asked to enter a password which is “**PASS-xxxx**” where **xxxx** is the same four-digit code as in your network name. You can change both the network name and password in the AIT6000 unit's web interface, which will be explained later in this manual.
- The VHF LED will only illuminate when you press the Transmit button on the VHF handset. To make sure that the AIT6000's internal splitter is working OK, make a VHF transmission and ensure that the VHF LED illuminates all of the time that you are pressing the VHF Transmit button.
- If you have fitted a Silent switch, then turn on the switch (closed) and ensure that the Blue Silent LED illuminates and goes out when you turn off the switch (open).
- Installation is now complete. The AIT6000 now needs to be configured using its web interface – see next section.





4. Configuration

The AIT6000 transponder must be correctly configured with the MMSI and static data for your vessel before operation. All configuration information must be entered carefully as this information will be transmitted to other AIS equipped vessels and shore stations.

i In the United States of America, the MMSI and static data must only be entered by a competent installer. The end user of the equipment is not authorised to enter their own vessel data. If you are a US resident and intend to use your AIS class B transceiver in US waters, you should make sure that your retailer has configured your product prior to supplying it to you. If your AIS transceiver has not been pre-configured, please contact your dealer for details of how to have it configured.

The AIT6000 has a simple web interface that allows configuration of the MMSI and static data via any modern web browser, without the need of any special app or software. This same web interface can be used to configure the Wi-Fi network, set the data protocol (TCP or UDP), remotely turn on/off the transponders “Silent Mode” and monitor the correct operation of the transponder.

To access the web interface, connect to the AIT6000 wireless network, open a web browser (Safari, Chrome, Firefox, Edge, etc.) and either enter the IP address of the AIT6000...

<http://192.168.1.1>

...or if your device supports Bonjour/mDNS you can enter the following URL...

<http://AIT6000.local>

...which is useful if you have connected the AIT6000 to another wireless network and don't know what IP address it has been given.

You should now see the AIT6000 web interface home page (Fig 1).

The home page gives you access to three additional pages; the main **Status** page, the NMEA **View Data** and the system and network **Settings** page.

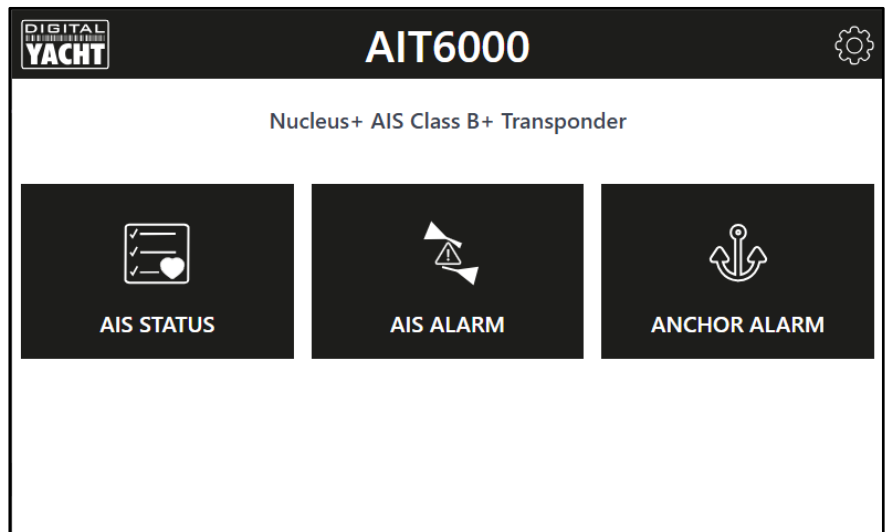


Figure 1

4.1 AIS Status Page

In the main AIS Status page is where you can monitor the status and performance of the transponder.

This page has “Virtual LEDs” that repeat the physical LEDs on the unit and also a set of green ticks or red crosses that display the results of the AIT6000's internal self-tests. These tests are constantly running in the background, but it should be noted that the transmit tests, that measure VSWR, only update on each transmission (not in real time) so could take up to 3 minutes to update when the boat is stationary.

Before the AIT6000 has been configured with an MMSI number, most of the self-tests will be shown with a red cross icon, and the Status and Timeout LEDs will be illuminated. To configure the transponder go to section 4.2.

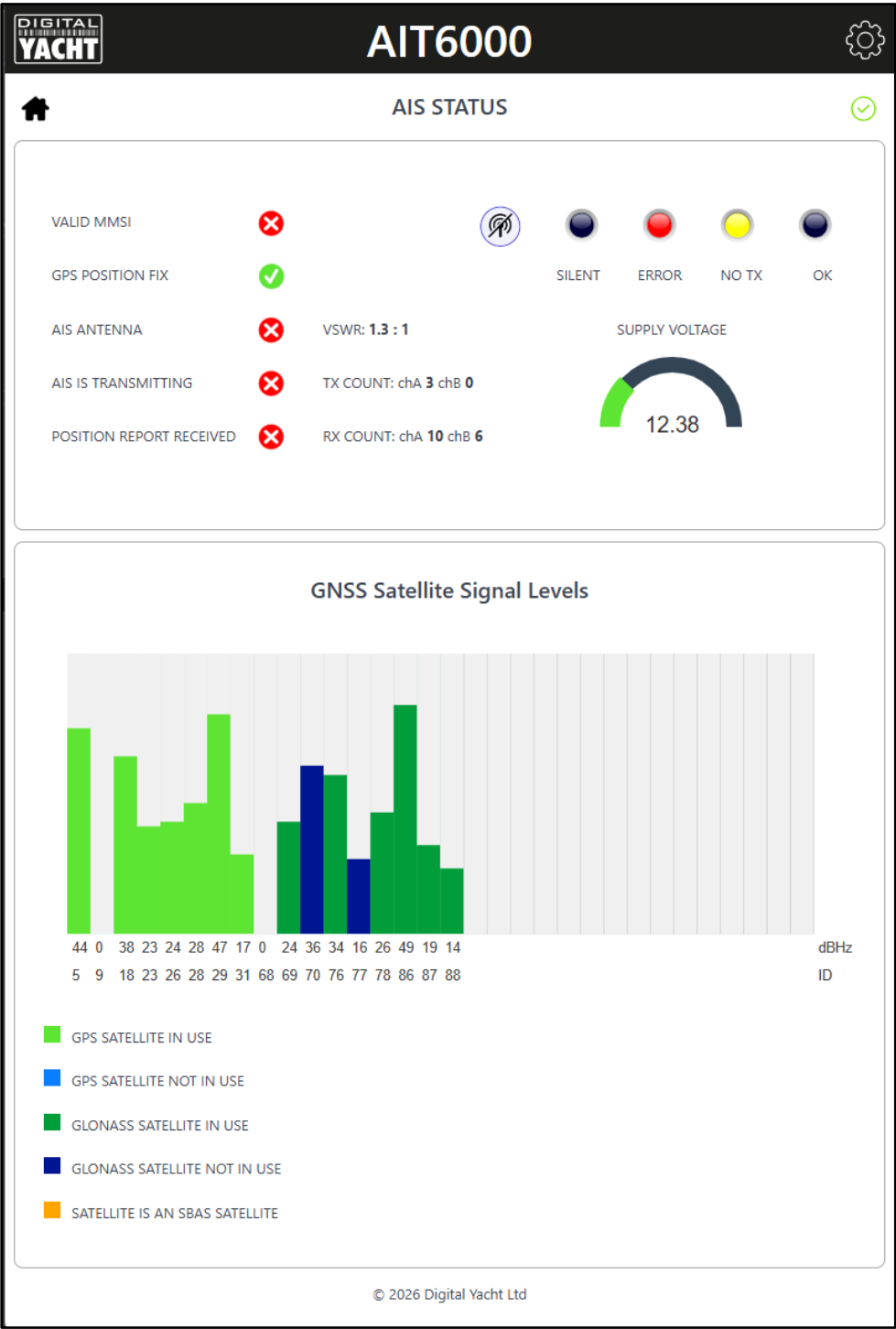


Figure 2

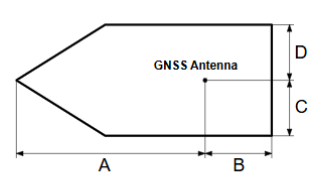
4.2 Configuring Vessel Details

In order for the transponder to transmit your vessels position, it must be configured with your boat's information (known as AIS Static Data). From the AIT6000 web interface Home Page, click the Settings button and you will be taken to the Settings page. Scroll down to the Vessel Details section (Fig 3), where you can start to enter the boat's data.



Vessel Details

VESSEL'S NAME	MYTESTBOAT
CALL SIGN	343423
MMSI NUMBER	234567891
VESSEL TYPE	37 - Pleasure craft
DIMENSION A	1 m
DIMENSION B	2 m
DIMENSION C	3 m
DIMENSION D	4 m



Update Boat Details

Figure 3

As you enter the ship's name and call sign, they will be automatically displayed and stored as capitals, regardless of whether you entered them in upper or lower case.

The MMSI number can only be programmed once, so particular care should be taken to check that it is correctly typed in. All other data can be changed at any time.

Select the Vessel type by clicking on the drop-down list and selecting the vessel type most applicable to your vessel.

Finally enter the four offset measurements of where the GNSS (GPS) antenna is mounted on your boat. These values are to the nearest meter and it is better to round up, rather than down. For most pleasure craft these measurements are just for information for any vessel receiving the data, but for larger boats and commercial vessels they are important as some chart systems draw the AIS targets to scale on the electronic chart, based on the measurements you enter.

Once you are happy that all your boat's static data has been entered correctly, remembering to double check the MMSI number, click the "Update Settings" button and the details will be stored in the AIT6000's non-volatile memory.

Now power cycle the AIT6000, waiting a couple of seconds between powering OFF and then back ON again.

Now when you connect wirelessly to the AIT6000 and bring up the web interface again, you should see the static data that you previously entered.

4.3 Status Information

Once the AIT6000 is configured, it is sometimes useful to check on how the transponder is performing or to remotely switch the transponder in to "Silent Mode". This can all be accessed by clicking the **"Status"** panel on the AIT6000 web interface Home Page and viewing the "AIS Status" section (Fig 5).

The new web interface gives real-time display of the LED Status of the unit, useful if it is hidden away behind a panel, shows the status of the key factors that affect the transponder i.e. Supply Voltage, GPS fix and VSWR value, and also gives a useful GNSS satellite status graph showing the satellites being tracked and used for navigation.



A series of simple Tick and Cross icons give an immediate indication of correct operation and you also have the RX and TX count to show how many targets have been received and how many successful transmissions the AIT6000 has made.

Please note that when you first display this web page, you will need to wait until the AIT6000 makes a transmission before it can check/tick the “AIS Antenna” and “AIS has transmitted a position report” status. Also, if you close the browser window and re-open it, all of the TX and RX counts will return to zero.

The image below shows the typical status values for a correctly operating AIT6000. Note that the Green OK virtual LED should be the only one illuminated and means the AIT6000 is passing all of its internal self tests.

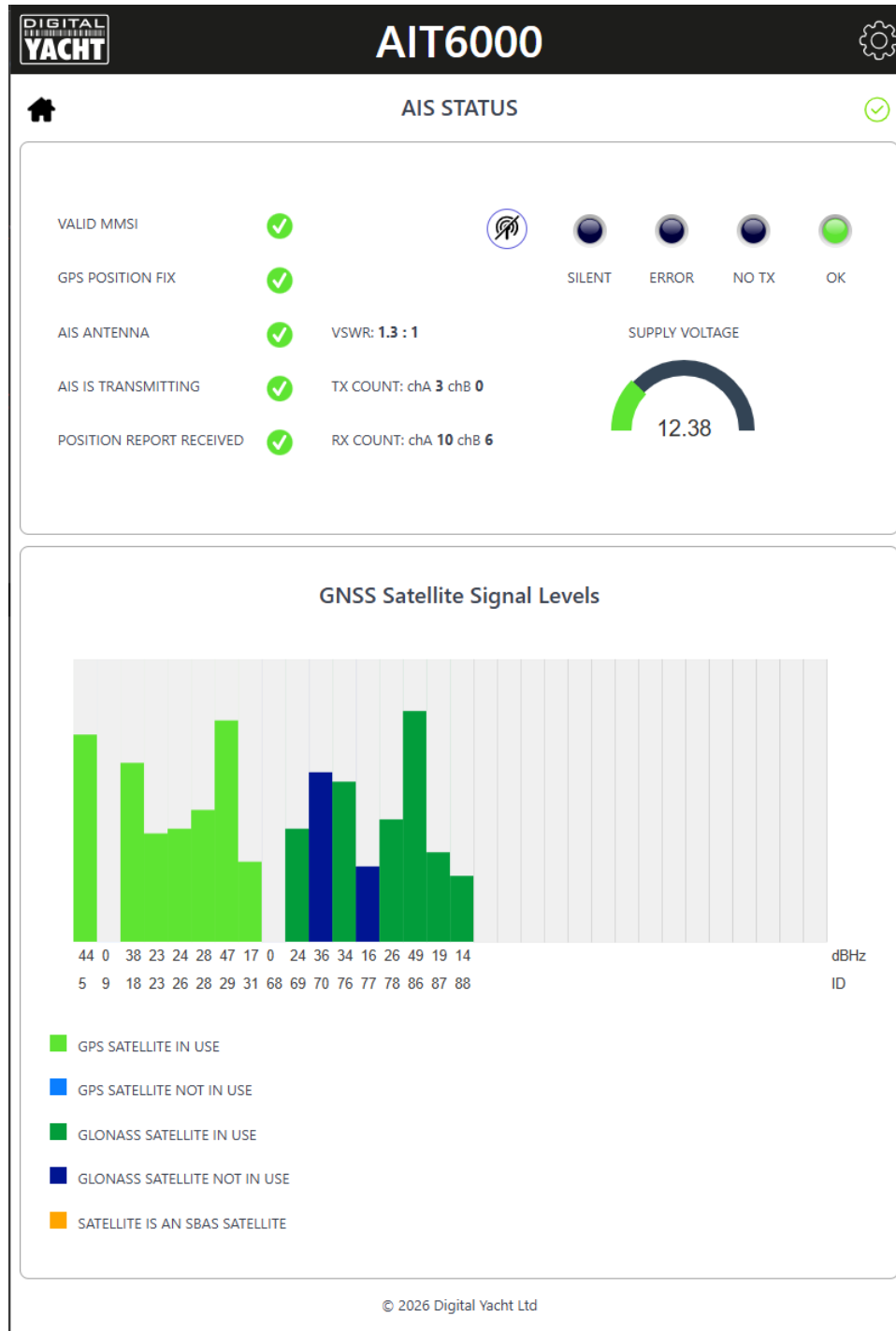


Figure 4



To put the AIT6000 in to “Silent Mode”, click the “Silent” button and the blue Silent LED will illuminate (Fig 6). If left in Silent mode for more than a few minutes, the green “Power” LED will go off and the yellow “Timeout” LED will illuminate.

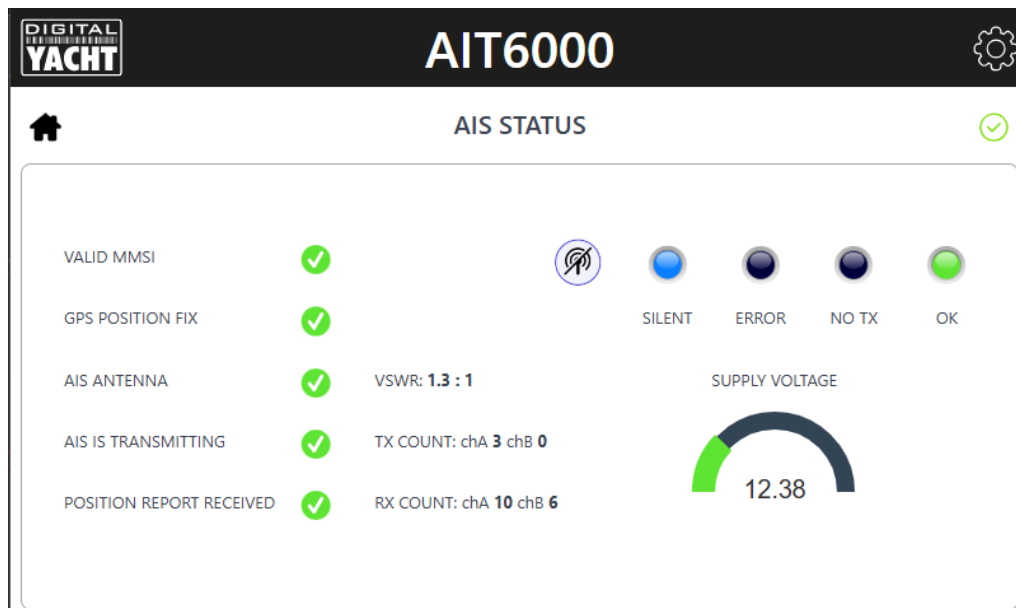


Figure 5

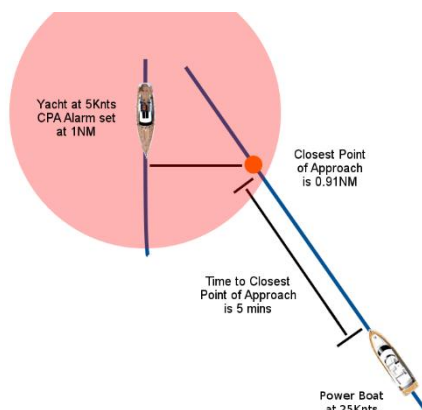
To start transmitting again, simply click the “Silent” button again and the blue “Silent” LED will go off and as soon as the AIT6000 makes its next transmission the green “Power” LED should illuminate, and this indicates that everything is working correctly, with all self-tests passed.

4.4 AIS Alarm Page

The AIT6000 has two alarms for warning you of other AIS equipped vessels that you are possibly on a collision course with. From the Home Page, click the AIS Alarm button and you will be taken to the AIS Alarm page (see Fig.7).

The first alarm is the Closest Point of Approach (CPA) alarm which is set as the radius (in Nautical Miles) of an imaginary circular zone around your boat that you do not want another vessel to enter – shown below as a 1NM red circle.

The second alarm is the Time to Closest Point of Approach (TCPA) alarm which is the time in minutes before a vessel will enter your CPA circle – shown below as 5 mins.



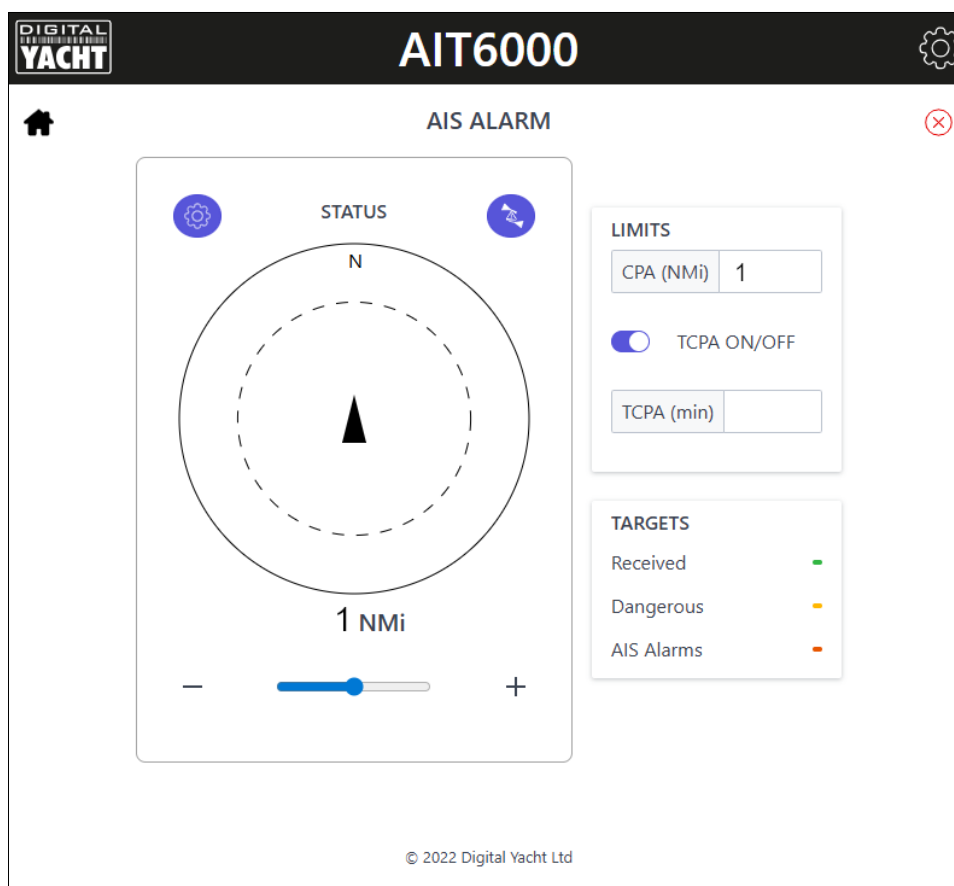


Figure 7

Once you have set the CPA and TCPA values that you wish to use, click on the blue Enable Alarm Icon in the top right corner of the screen. Now the AIT6000 will be constantly monitoring all of the AIS targets and checking what the CPA and TCPA of each vessel is. If any dangerous vessel is detected, then the AIT6000 will alarm, showing a red circle around the boat and the dangerous vessel or vessels as red triangles. In addition the AIT6000 will transmit a NMEA 2000 Alert sounding alarms on any compatible MFD or our own [NAVAAlarm Klaxon](#).

NOTE – the AIS Alarm operates in the background and once enabled, the web page can be closed.

4.5 Anchor Alarm Page

Clicking on the Anchor Alarm button of the AIT6000 Home page takes you to the Anchor Alarm page (see Fig.8).

When you have deployed your anchor, the AIT6000 Anchor Alarm can monitor the boat's position and alarm if it detects the boat has drifted outside the Anchor Alarm circle.

If available, the Anchor Alarm will take the NMEA 2000 Depth, Wind Speed and Speed Over Ground data and display this at the bottom of the page. You will need to set the Chain/Rope multiplier and Anchor/GPS offset, both of which are used to set the alarm circle position and radius (Depth x Multiplier) and then click the blue Enable Anchor Alarm icon in the top right corner.

As soon as the alarm is enabled, the anchor position is recorded and the alarm radius calculated and displayed. Then the AIT6000 will constantly monitor and display the boat's position, relative to the anchor and if the boat drifts outside the alarm circle, it will alarm, displaying a red circle on the web page and transmit an NMEA 2000 Alert sounding alarms on any compatible MFD or our own [NAVAAlarm Klaxon](#).

NOTE – the Anchor Alarm operates in the background and once enabled, the web page can be closed.

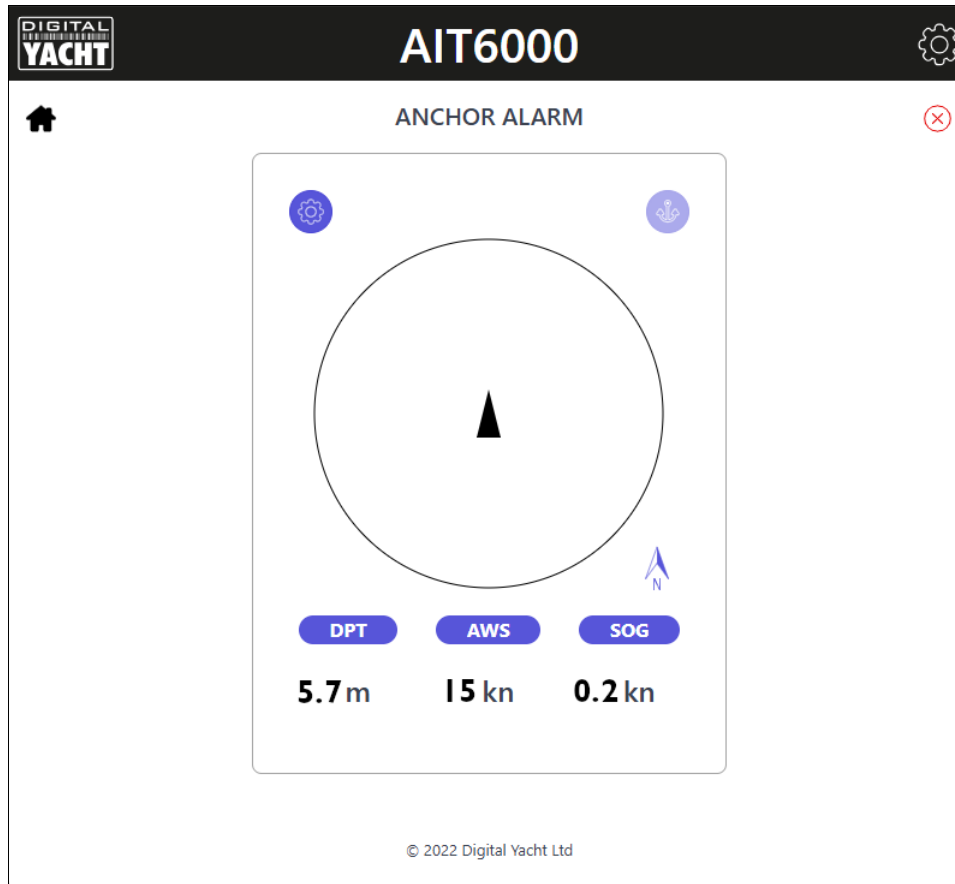


Figure 8

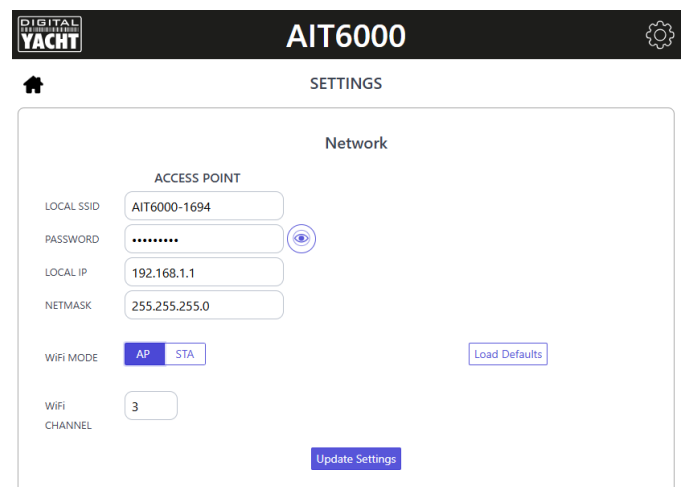
4.6 Settings Page

From the Home Page, click on the “Cog Wheel” settings icon in the top right corner and you will be taken to the Settings Page.

By default, the AIT6000 unit is in “Access Point” mode, that means it creates its own password protected wireless network and automatically provides network settings to any device that connects to it (via DHCP). You can change the default network name and password, if required, and the wireless channel that the AIT6000 uses (Channel 1 by default).

If you already have a wireless network on the boat and you would prefer the AIT6000 to be part of this network, rather than create another wireless network of its own, you can make it operate in “Station” mode. Select “STA” mode and then select from the drop down list the network you would like to join and enter that network’s password.

Once you are happy that everything is correct, click the “Update Settings” button and the AIT6000 will store the new settings and reboot which normally takes about 20 seconds.



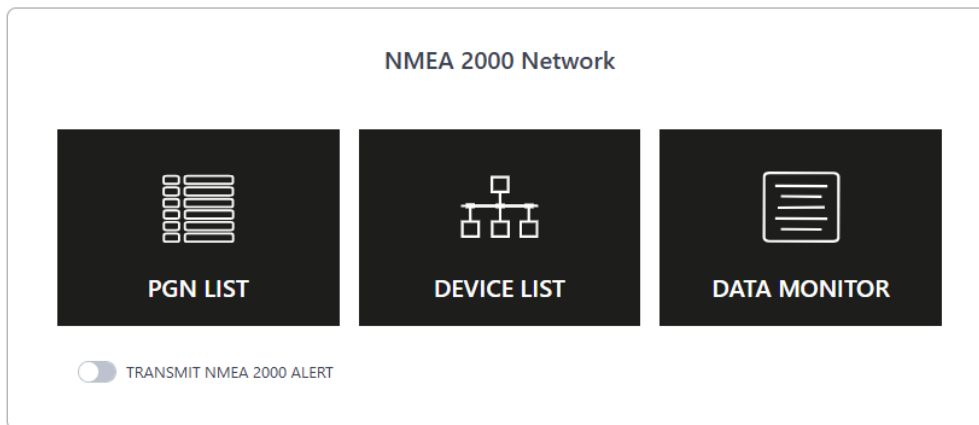


To activate “Station” mode, click the “STA” switch and then click the “Scan” button. From the list of Wi-Fi networks, select the one you wish to connect to and if it is password protected, enter the password. Once complete, click the “Update Setting” and the AIT6000 will store the new settings and reboot which normally takes about 20 seconds.

In “Station” mode, the AIT6000 will attempt to find and connect to the wireless network you have setup and stored. A few seconds after power up, the Wi-Fi LED will start flashing red and go solid if the AIT6000 has successfully connected to the wireless network.

4.7 NMEA 2000 Diagnostics

To help with NMEA 2000 interfacing issues, the AIT6000 has three useful diagnostic tools. Scroll down the Settings page until you get to the NMEA 2000 Network section. Here you will find three buttons; PGN List, Device List and Data Monitor.



To display all of the received NMEA 2000 PGNs click the PGN List button, to display a list of all of the NMEA 2000 devices on the network, click the Device List button and to display/log the data being received on the NMEA 2000 network or display the wireless NMEA 0183 data that the AIT6000 is transmitting to mobile Apps, click the Data Monitor button.

Just below the three buttons is a switch that enables NMEA 2000 Alerts to be transmitted if any AIT6000 alarm occurs.

AIT6000					AIT6000					AIT6000				
PGN List					Network Device List					Data Monitor				
PGN	SRC	DST	DESCRIPTION	TIME	ADDR	MANUFACTURER	CAN NAME	DIN	CLASS	FUNCTION	NMEA 2000			
127237	14	255	Attitude	786.548	0	Unknown(632)	E310303080B84CC	0	Propulsion	Engine Room Monitoring	IPDOV: 128259.2, 14, 255, 824, 858, FF000000FFFF			
128267	14	255	Water Depth	786.550	1	Digital Yacht	9039A05008532C3	0	Inter/Intranetwork Device	NMEA 2000 to Serial Gateway	IPDOV: 130316.5, 14, 255, 824, 861, FF00000079104FFF			
130316	14	255	Temperature Extended	786.551	2	Adisensec	18204202078232C3	1	Inter/Intranetwork Device	PC Gateway	IPDOV: 128275.6, 14, 255, 824, 875, FFFFFFFF7104000000000000			
128259	14	255	Speed Water Referenced	786.559	5	Adisensec	18204202078232C3	4	Inter/Intranetwork Device	PC Gateway	IPDOV: 129025.2, 43, 255, 824, 901, C28BA61ECCFC64FE			
128275	14	255	Distance Log	786.571	14	Airmar	11826A10788B78C1	128	Navigation	Depth / Speed / Temp	IPDOV: 129026.2, 228, 255, 824, 923, 00CFF00000FFFF			
128982	43	255	System Time	786.591	39	Digital Yacht	94708200030532C3	0	Inter/Intranetwork Device	NMEA 2000 Wireless Gateway	IPDOV: 129025.2, 228, 255, 824, 923, 00CFF00000FFFF			
129025	43	255	Position Rapid Update	786.591	43	Digital Yacht	76A8B7300C378C3	0	Navigation	Automatic Identification System	IPDOV: 127250.2, 229, 255, 824, 924, 002455FF7D46FFD			
129026	43	255	COG & SOG Rapid Update	786.601	238	Simrad	8441838080178C3	8	Navigation	Chandip Position (CHV3)	IPDOV: 127251.3, 229, 255, 824, 924, 002368010000FFFF			
129028	0	255	Wind Data	786.613	229	Simrad	9407130309A050C3	9	Steering and Control Surfaces	Heading Sensors	IPDOV: 130306.6, 0, 255, 824, 938, 5A0000038702FFFF			
129028	228	255	COG & SOG Rapid Update	786.621							IPDOV: 129026.2, 43, 255, 824, 901, C28BA61ECCFC64FE			
129025	238	255	Position Rapid Update	786.621							IPDOV: 128267.3, 14, 255, 824, 875, FFFFFFFF7104000000000000			
127250	228	255	Wind Heading	786.627							IPDOV: 128259.2, 14, 255, 824, 858, FF000000FFFF			
127251	229	255	Kate of Turn	786.632							IPDOV: 130316.5, 14, 255, 824, 861, FF00000079104FFF			
127598	5	255	Battery Status	786.626							IPDOV: 128275.6, 14, 255, 825, 75, FFFFFFFF7104000000000000			

4.8 NMEA 2000 Sources and Firmware Update

The AIT6000 converts some NMEA 2000 data to NMEA 0183 that it transmits wirelessly to apps. On some NMEA 2000 networks there are multiple sources of data, in particular GNSS and the AIT6000 allows you to select what source (device) you want to use.



By default the AIT6000 will automatically choose the source with the lowest Address on the network. This automatic selection can sometimes select an inferior source and these switches let you manually select the address of the source that you want to use.

NMEA 2000 Source Selector

SPEED	AUTO	14
DEPTH	AUTO	14
WIND	AUTO	0
HEADING	AUTO	229

Firmware update

Only use AIT6000_OTA_x_x.bin file provided by Digital Yacht

Choose file No file chosen

Upload Firmware

Product Serial Number: **F21694**

Firmware version: **v1.00**

For support please visit:

<https://digitalyacht.support>

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From time to time, Digital Yacht may release new firmware updates to add features or fix bugs in the AIT6000. Only update your unit if told to do so by Digital Yacht or one of their dealers.

At the bottom of the “Settings” page is the Update Firmware section you just have two buttons; a “Choose File” button to select a firmware update file that you have downloaded and stored on your mobile device and an “Upload Firmware” button that once you have selected a file, initiates the upload process.

A percentage status indicator will count up in the bottom left corner of the browser, to show the progress of the upload. When the upload is complete, you should see a screen confirming everything is OK and saying that the AIT6000 will reboot in 20 seconds.



5. Operation

Once installed and configured, correct operation of the AIS transponder is pretty much automatic, simply turn the unit on and it will either create its own wireless network (Access Point Mode) or join another wireless network (Station Mode) if this is how you have set it up.

Within about 10-20 seconds after powering up, you should be able to connect wirelessly to the AIT6000 and start receiving AIS data from other vessels.

After about one minute, it should receive a valid GPS position and start transmitting your position. This continues every 30 secs whilst sailing (over 2 knots) or every 3 minutes whilst moored.

Correct operation should be verified as follows:

1. Check that the green "Wi-Fi" LED flashes when you first turn the AIT6000 on and goes to a solid ON, as soon as you have connected wirelessly to the AIT6000 (Access Point Mode) or it has successfully joined another wireless network (Station Mode).
2. The yellow "Data" LED should flash regularly to indicate that the unit is receiving GPS/AIS data.
3. The yellow "Timeout" LED will initially flash to indicate that the AIT6000 is waiting for its first GPS position fix. As soon as a position fix is achieved the "Timeout" LED will go to a solid ON and then within 3 minutes the "Timeout" LED should go off and the green "Power" LED should illuminate.
4. If the red 'Error' LED is illuminated please go to the web interface and check the unit is correctly programmed, the supply voltage is above 10v, GPS fix status is good and the VSWR reading is below 5.
5. If the unit does not have GPS fix within a few minutes check that the AIT6000's GPS antenna cable is firmly screwed in to the FME to TNC adaptor.

The AIT6000 is designed to be used with compatible navigation software or apps that support wireless NMEA data over UDP or TCP. The AIT6000 transmits AIS, GPS, Boat Speed, Wind, Heading and Depth data.

For UDP operation simply set the app to port 2000 (set IP = 0.0.0.0 if required) and for TCP operation enter the IP address as 192.168.1.1 and the port as 2000. If you are operating the AIT6000 in Station mode, then it will have received an IP address from the wireless router it is connected to and you will either need to connect to <http://ai6000.local> and discover your AIT6000's IP address in the Settings page or look in your wireless router's DHCP Client list in its web interface.

For more information on compatible software and apps, please visit our blog <http://digitalyacht.net> and search for "iOS Apps" or "Android Apps". For information on how to configure a specific App to work with our wireless products, please visit our support site <https://digitalyacht.net/configure-apps-software/>



6. Troubleshooting

If the AIT6000 does not appear to be working correctly, use the web interface to check for problems:

1. Is the MMSI number programmed?

Check in the web interface if there is a red cross next to the "AIS Transceiver MMSI Valid" item then you have not correctly configured the MMSI.

2. Does the unit have a GPS position fix?

Check in the web interface if there is a red cross next to the "GPS position fix" item then the unit does not have GPS fix. Check your GPS antenna and connections.

3. Is the VSWR reading too high > 5?

Check in the web interface what the VSWR value is and if greater than 5, then you need to check the state of your VHF antenna and its connections. Any poor connections, partial shorts, damage to the cable, corrosion can affect the VSWR reading and the higher this is, the less power is being transmitted.

4. Is there a good supply voltage?

Check in the web interface if the DC supply is higher than 9.8v which is the level at which the AIT6000 will stop transmitting. It needs a good 12v or 24v supply for correct operation and you will need to check the power connections for excessive voltage drop.

5. Are you wirelessly connected to the AIT6000?

Many mobile devices will automatically switch to another wireless network that they recognise if it has an internet connection. The AIT6000 being a wireless device, rather than a wireless router, does not have an internet connection and sometimes this can cause your wireless smart phone or tablet to switch to another wireless network or revert to a 3G/4G connection.

6. Are there any other marine navigation apps open on your device?

Both iOS and Android operating systems allow multiple apps to be opened and when you switch to another app, the apps that are in the background can still be connected to network resources, blocking another app from connecting. If you have trouble receiving the wireless data on an app, close all other open apps including the app you are trying to use and then open it again on its own and see if you can now receive data. If all else fails, turn off the wireless device and then power it on again, which will reset all network connections and services.

7. Is there an external power connection?

When connected to a computer via USB, the AIT6000 can take enough power from the USB port to work as an AIS receiver but not as a Class B+ transponder. Occasionally if a fault occurs in the boat's wiring, a fuse blows or the circuit breaker trips, then the AIT6000 will lose external power and only have the USB power. In these circumstances, the AIT6000 will receive AIS targets but not transmit its own position and the Red and Yellow LEDs will be lit.

For more general information about AIS please Google "Introduction to AIS White Paper" or "Non-Idiots Guide to AIS" or "Is my AIS Transponder Transmitting" to find three useful AIS articles that we have published.