FlyingBoats! User Guide

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Contents

Overview

The FlyingBoats! AIS to GDL90 converter is an in-cockpit VHF marine radio receiver with WiFi connectivity. It receives and decodes Automatic Identification System (AIS) position reports being broadcast by ships and converts them to ADSB-like traffic reports for display in ForeFlight.

Ship locations can be viewed directly on the moving map in ForeFlight, allowing pilots to see vessels that are within the ForeFlight glide ring at a quick glance.

Use Cases:

- Ferry flying
- Single engine IFR over water
- Offshore & maritime aviation

Connections and Setup

Power

The FlyingBoats! receiver can be powered from a 5V USB power supply via the supplied USB mini cable, or from a 9-36V DC power supply via the green connector on the back of the unit. If supplying power via the green connector, use the two outer terminals marked “PWR” and “GND”. The two inner terminals marked “NMEA -” and “NMEA +” should not be used.

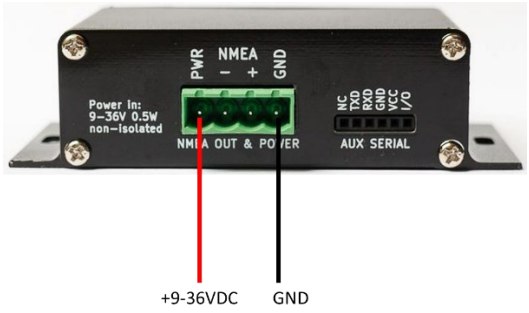


Figure 1 -9-36V DC Power Connection

Antenna

Depending on how the device is mounted, the provided VHF antenna can be connected to the BNC connector on the receiver directly or using the provided 90-degree adapter. An external VHF antenna can also be connected to the BNC connector, if desired.

Mounting Location

When using the provided “rubber duck” BNC antenna, the best range will be achieved if the antenna is placed in a window. Reception may be possible with the antenna in a different location, but range may be reduced. With the antenna in a window, locations may be received up to 100 nm away when cruising at 10,000 ft.

Figure 2-Example Mounting Location

WiFi Connectivity Options

The iPad device running ForeFlight must be connected to the same WiFi network as the FlyingBoats! receiver to receive data from it. This can be achieved in one of two ways:

1. The FlyingBoats! receiver can act as a WiFi client and connect to an existing in-cockpit WiFi network
2. The FlyingBoats! receiver can act as a WiFi access point that the iPad can connect to.

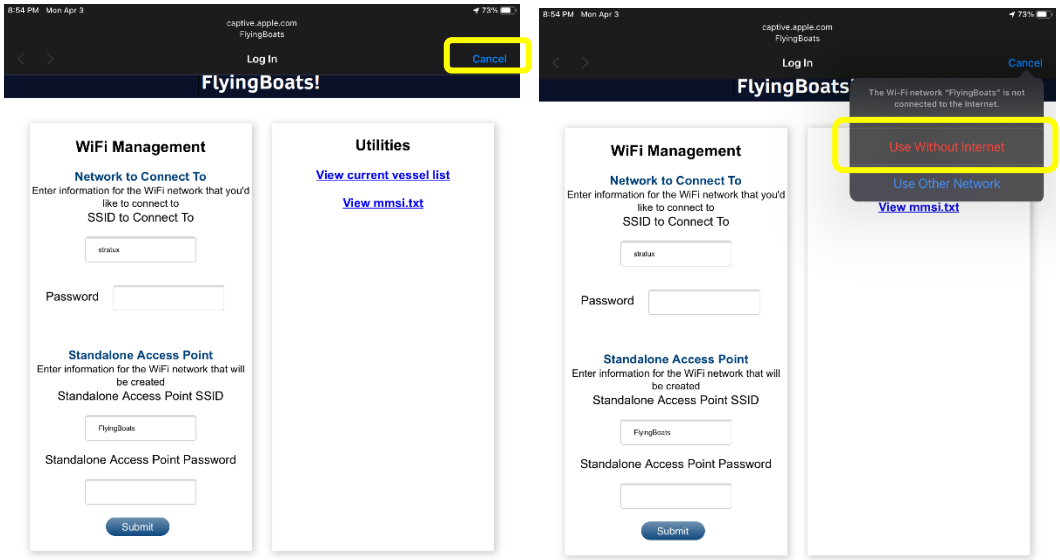
Note: The FlyingBoats! receiver is capable of operating in both modes simultaneously – it can connect to another WiFi network while at the same time creating its own WiFi network as an access point.

WiFi Access Point Mode

If the iPad is not already connected to an existing in-cockpit WiFi network, it can connect to the FlyingBoats! WiFi network to receive AIS position reports. At the same time, it can connect to another device (such as a Garmin transponder or glass panel device) via Bluetooth to receive ADSB position reports.

Figure 3- iPad Connected to FlyingBoats! WiFi network

The first time that you connect the iPad to the FlyingBoats! WiFi network, you'll likely be taken to a settings & login screen. In the Log In area at the top of the screen, click "Cancel", and then "Use Without Internet" when prompted.



WiFi Client Mode

If the iPad is connecting to an existing in-cockpit WiFi network to receive ADSB position reports (for example, from a Stratux, Stratus, or Sentry device), the FlyingBoats! receiver can connect to that WiFi network to send AIS position reports to the iPad.

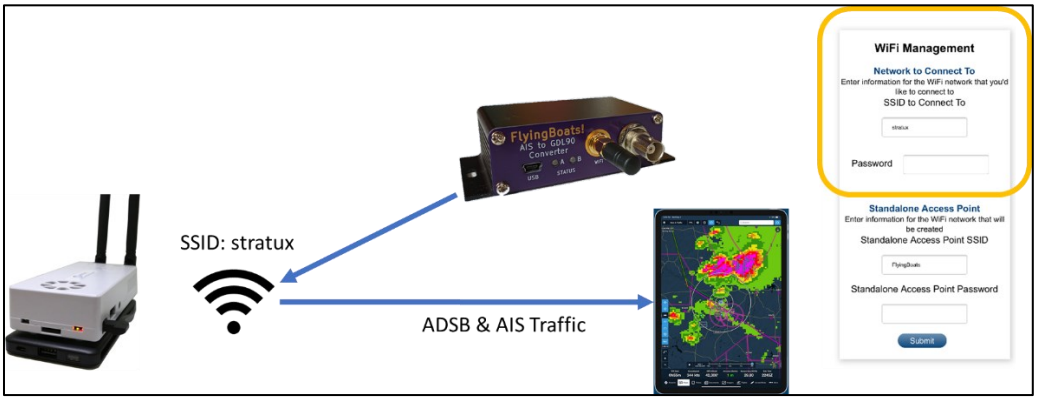
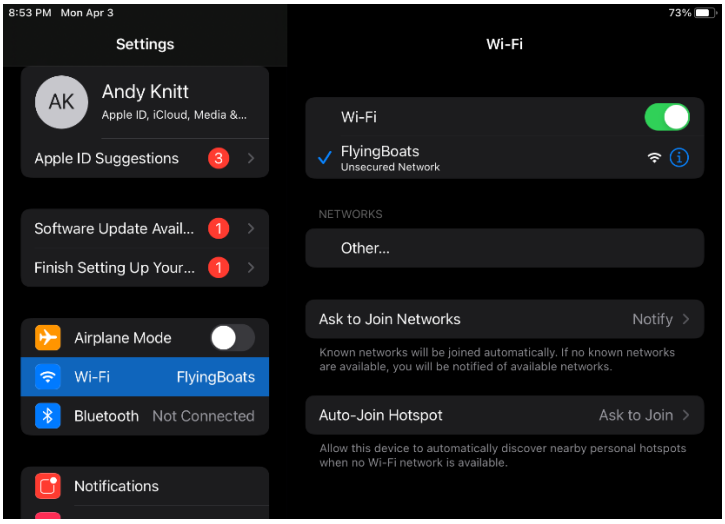


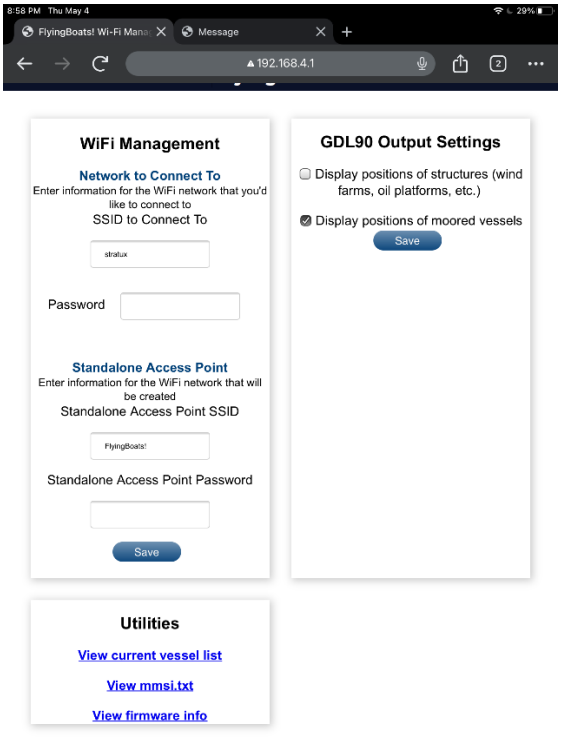
Figure 4- FlyingBoats! connects to existing Stratux WiFi network

Configuring Settings

To configure the FlyingBoats! settings, connect the iPad to the FlyingBoats! WiFi network. In the iPad settings, go to WiFi and connect to the “FlyingBoats!” network.



Once successfully connected to the FlyingBoats! WiFi network, open a web browser and navigate to http://192.168.4.1 to access the settings page.



WiFi Settings

WiFi settings can be changed in the “WiFi Management” portion of the page, where you can change the SSID (network name) and password of the WiFi network that the receiver creates (default SSID is “FlyingBoats!” with no password) or specify the SSID and password of the in-cockpit WiFi network that you want the device to connect to (default is “stratux” with no password).

Click the “Save” button to save changes to WiFi settings.

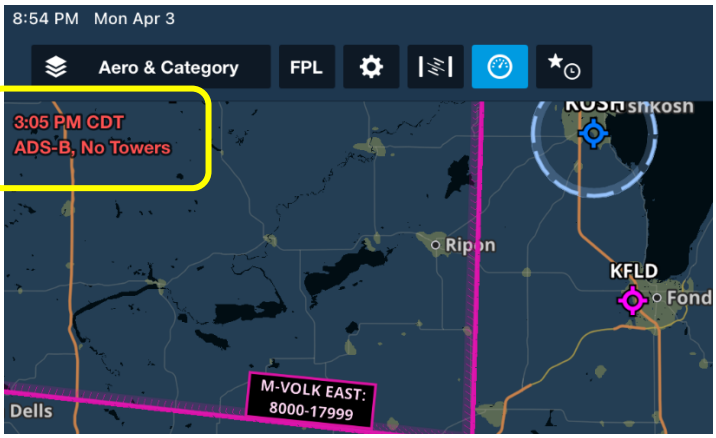
GDL90 Output Settings

These settings determine whether certain types of AIS traffic reports will be sent to ForeFlight for display.

- To display the position of stationary maritime structures such as oil platforms and wind turbines, check the corresponding box.
- To display the position of vessels reporting a status of “moored”, check the corresponding box. Unchecking this box can help reduce clutter in port areas. Note: Vessels reporting a status of “anchored” will always be displayed.

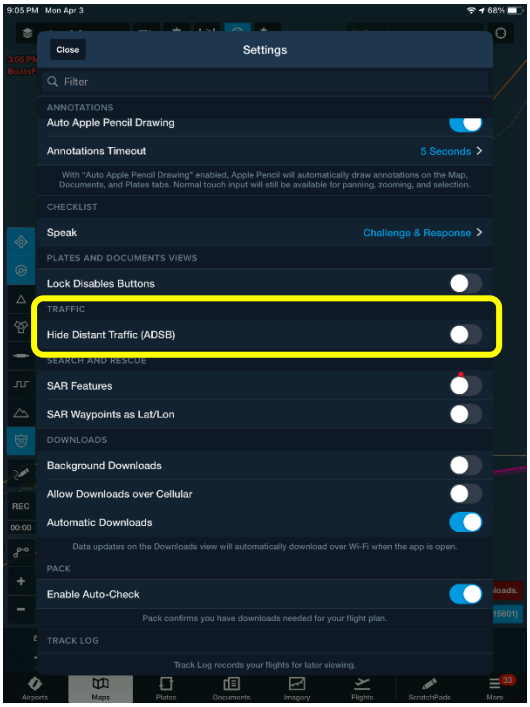
Usage and Operation

Once the iPad and the FlyingBoats! receiver are both on the same WiFi network, open ForeFlight. After a few minutes, the text in the upper left portion of the map screen should change to red font and say “ADS-B, No Towers” or “BoatsFly, No Towers”. This is an indication that the FlyingBoats! receiver is talking to ForeFlight. AIS position reports should now show up as “traffic” in ForeFlight.



Misc. Info

1) All AIS traffic will be displayed at 0 MSL altitude.
2) You’ll likely need to turn the “Hide Distant Traffic (ADSB)” setting OFF in ForeFlight to get ships to show up on the map due to the altitude difference between you and them.

a. 

3) AIS position reports are sent by vessels every few seconds. However, the vessel name is only sent every 5 to 6 minutes. When you first start seeing a vessel on the map, its name will not be known. Instead, the first eight digits of the vessel's MMSI number will be displayed as the "name". Once an AIS transmission containing the vessel name is received, the MMSI number will be replaced with the first eight characters of the vessel name.

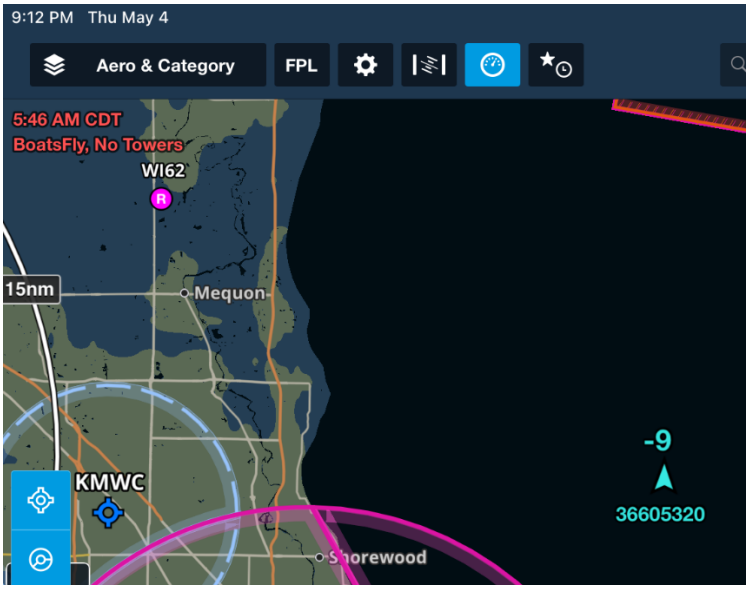


Figure 5 – First 8 digits of MMSI displayed before vessel name is known

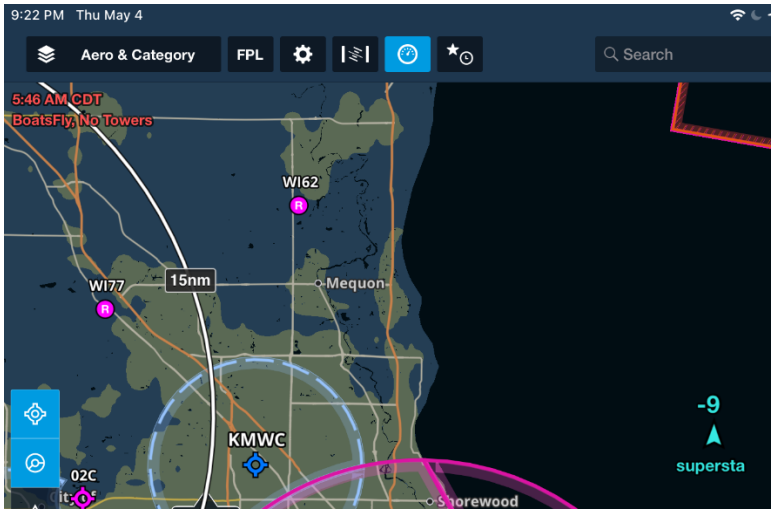
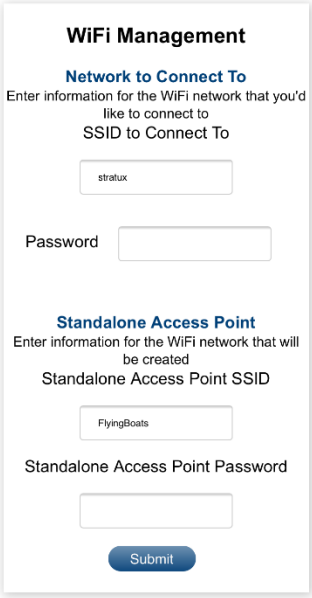
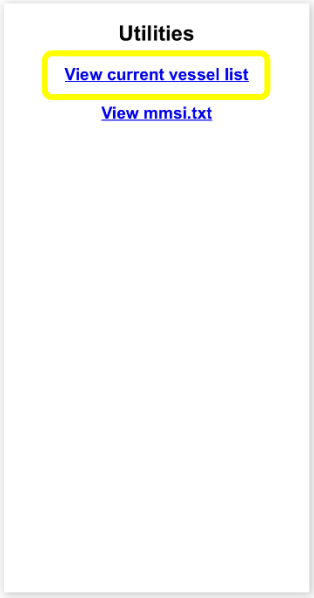


Figure 6 - First 8 characters of vessel name displayed

a. If you want to see the full vessel name, you can use a web browser to navigate to 192.168.4.1 (when connected to the FlyingBoats! WiFi network) and click on the “View current vessel list” link:

i.





b. The unit stores vessel name information in onboard memory, so if the power is cycled, it will still display previously saved vessel names.

Troubleshooting Tips

I'm connected to the FlyingBoats WiFi network, but ForeFlight isn't indicating that it's receiving ADSB.

On the iPad WiFi setting screen, ensure that there is a blue checkmark next to the FlyingBoats! network. If the blue checkmark is not present, try disabling and re-enabling WiFi on the iPad and reconnecting to the FlyingBoats! network.

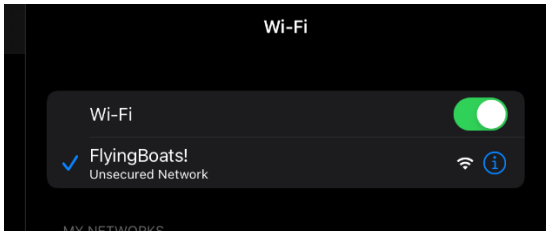


Figure 7 - Blue Check Mark - OK

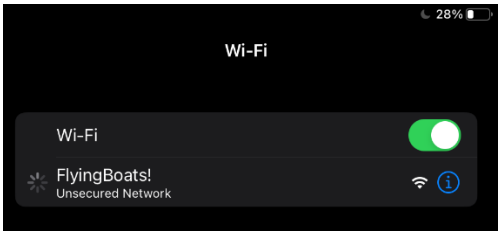


Figure 8 - No Blue Check Mark - Not OK

FAQ

Q: Why are only the first 8 characters of the vessel name displayed?

A: This is a limitation of the GLD90 data format that is used to send information to ForeFlight. This data format was designed to accommodate aircraft tail numbers which have a max length of 8 characters.

Q: Can the AIS traffic be displayed using a different icon in ForeFlight to distinguish between AIS and ADSB traffic more easily?

A: Not currently. This is a limitation of ForeFlight. A feature request has been made with the ForeFlight team to enable different icons for different types of traffic, but it's unknown if/when this feature might be added.

Q: How far away will I be able to see ships?

Reception range will vary considerably based on altitude and the location of the receive antenna. With the antenna in the cockpit window, reception has been over 100 miles when cruising at 10,000 ft.

Q: Is Garmin Pilot supported?

A: Not currently. It's being investigated but there is no ETA on when it might be supported.

Q: Is iFly EFB supported?

A: Not currently. It's being investigated but there is no ETA on when it might be supported.

Q: Can I display the AIS traffic on my G1000/Dynon/other glass panel?

A: No. It's unlikely that it will be possible to display AIS traffic on a certified avionics system.