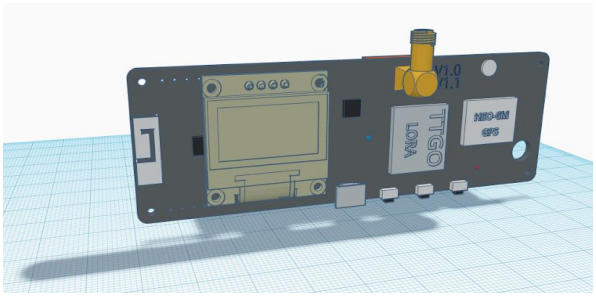
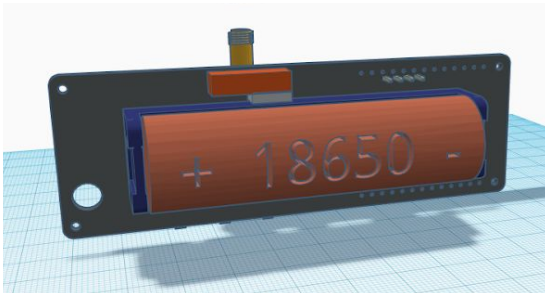
Congrats!

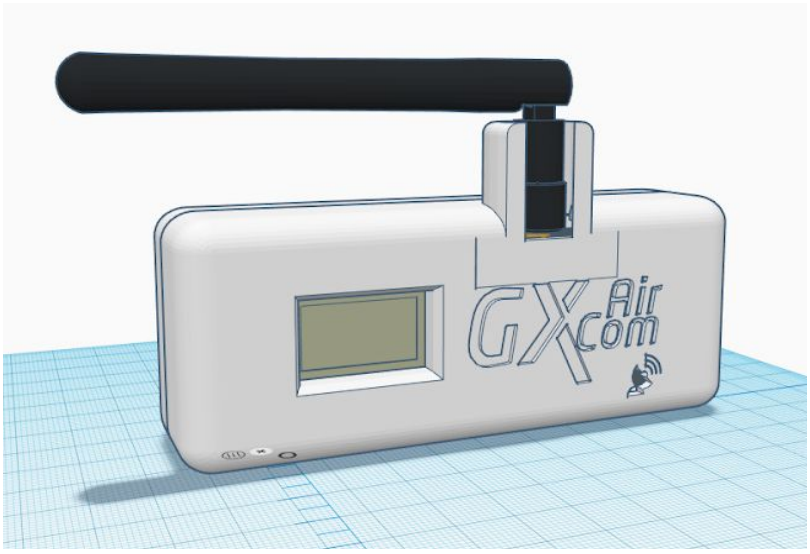
You just got a geolocalization equipment with radio transmissions, that operates on FANET (Flight Ad-Hoc Network).



The circuit board is a TTGO T-Beam



Uses a Litium battery type 18650, 3.7V



GXAirCom printed 3d case - TTGO T-Beam V1.x Small antenna.

What is it for?

With this device you can send your position via radiowaves, and receive the position of other aircrafts that have a FANET device on board and that are within the range of the radiowaves.

It operates on 868mhz or 916mhz, that can be selected by the user in general configuration screen.

It can operate over a range of more than 20km during flight if on line of sight with other aircrafts, and the range is greatly reduced when landed or when there are obstacles on the line of sight.

On the small screen you are goint to have information of received aircrafts like relative position, speed, height, and also your own vertical and horizontal speed, but the real potential comes when connecting the device to a smartphone (tested on android only) with some flying software compatible with FANET protocol sentences.

At the momment we have succesfully tested the device running on android with the following apps: LK8000, XCSoar y XCTrack. Between them LK8000 is the one that integrates better to the possibilities of FANET information so we recommend to use this one.

How to use it?

Charging the battery

In order to charge the battery you must use an USB 5v source with micro-usb port, like the ones used on a lot of android phones. Avoid using fast chargers, as they can output more than 5v,

and can damage the unit. An old, slow 500mh charger can fully charge the unit on about 5 hours, depending on the battery capacity that you have installed.

With a 2000mha battery, GXAirCom can operate continuously for more than 8 hours. There are a lot of cheap 18650 batteries on the market that announce 5000mha or more, but they are really misleading and could be just 500mha at the most, so try not to be fooled by cheap and amazing batteries and go instead for a branded one (electronic cigarettes shops usually have good 18650 batteries).

When you plug the unit to the micro-usb port, it powers up, but you can then turn it off in order to charge it faster.

Powering on and off.

To power on the unit, you must press and hold the button next to the charging port for 1 or 2 seconds. Press hard so you feel that the printed case button bends and “clicks” the button on the circuit board.

Once it’s on, you can see a light through the charging port (blue) and if you have screen, it will start with an animation logo and then jumps into one of the information screens.

To power off the unit, you must press and hold firmly the same button for at least 8 seconds. If you “release” the button during the turn off, the unit wont be fully turned off but will enter in standby mode, or it can even “restart”.

During powering off, there is an animation on the screen and even after the screen is fully off, you must hold for 2 or 3 more seconds the power button so a small “red” light that you can see through the charging port under the screen, also turns off.

The unit is not fully off but on standby mode.

Changing between information screens

On airborne mode the device has at the moment 3 configured screens. To alternate between them press briefly (1 sec) on the power button.

At the momment of this writting, the development is on version 1.4.4 and there are a few improvements on visual appearance, as bluetooth and wifi icons, battery icon instead of percentage, flying or standing still icons. But the general idea is similar to the one explained here.

Navigation page. On Top: Shows your selected type of aircraft, the gps status and number of received sats, the volumen of the audio vario if barometric module is installed, the flying or standing still status, wifi, bluetooth and battery status. On the middle you have vertical speed from barometer (if installed) or from gps, On last line you have gps altitude, and horizontal gps (ground) speed.	
“Closest” Shows information of the closest traffic. The top line has your status information as explained on Navigation page. Then you see a “Radar” with north on top or relative if you are moving, and position of the closest traffic with distinctive icon. On right you can see the name or id, the horizontal distance and the vertical distance relative to your current position, and the vertical speed registered by that traffic.	
“List”. Shows the same information as closest traffic but it changes every few seconds to the next received aircraft, so you can see who else is nearby.	

Setting up connection for the first time with the android phone that you will use as a flight computer

The real potential of GXAirCom comes when you connect it to a flight computer that can understand the data GXAirCom is processing and sharing.

At the moment the best option (tested) is through an android phone that we can access or read during the flight. and that we can use as a flight computer.

In order to be able to connect the device, we recommend using Bluetooth BLE (Low Energy). It can also be configured to work with standard Bluetooth or with Wifi connection.

<table>
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1. Turn on GXAirCom.
   It’s nicer if you have gps signal available, so everything will work ok.

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2. Open the bluetooth connections on the cellphone. To do this, pull down on the upper bar and click and hold over the bluetooth symbol. You will see the available nearby devices.
3. Find a device called GXAirCom-XXXXXX (The x are your specific device id.)

Click on that device and it should move up to the linked devices.

After first link it's sometimes required to turn off and On the GXAirCom.

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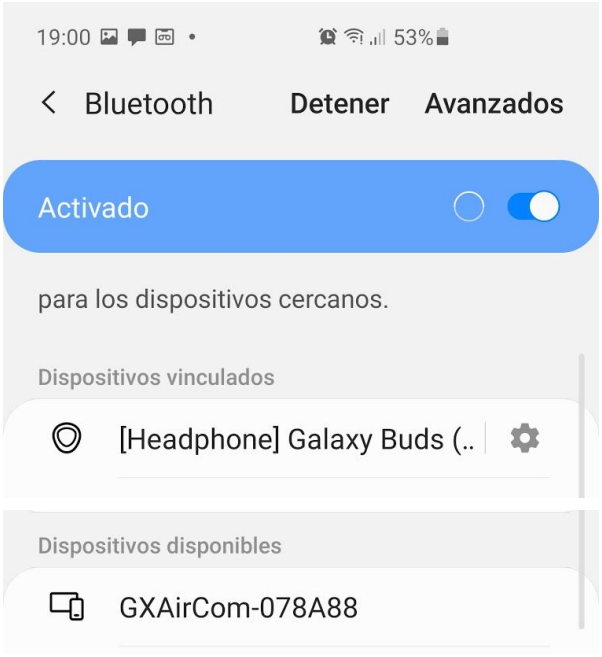
<td> 
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Connecting for the first time with LK8000 for Android

Una vez terminamos los pasos anteriores para emparejar o vincular el equipo con el bluetooth de nuestro teléfono de vuelo, ahora vamos a vincularlo con la aplicación de android llamada LK8000.

1. Check that you have the latest LK8000 beta version from the Play Store. It's free!

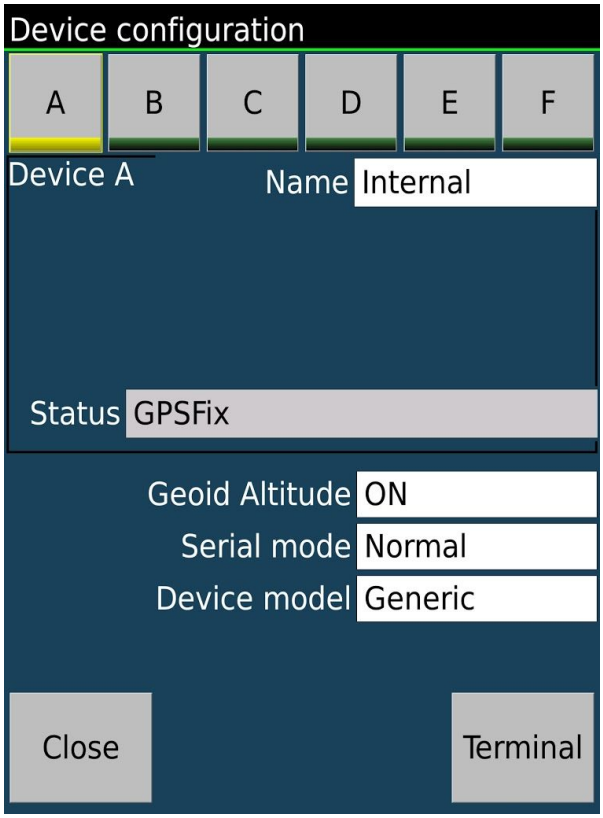
   The Beta version is the one with red icon, and is more developed than the standar version (blue icon).

   We have tested with version 7.1q (Sep 9 2020)

   Open LK8000 and click on "FLY".

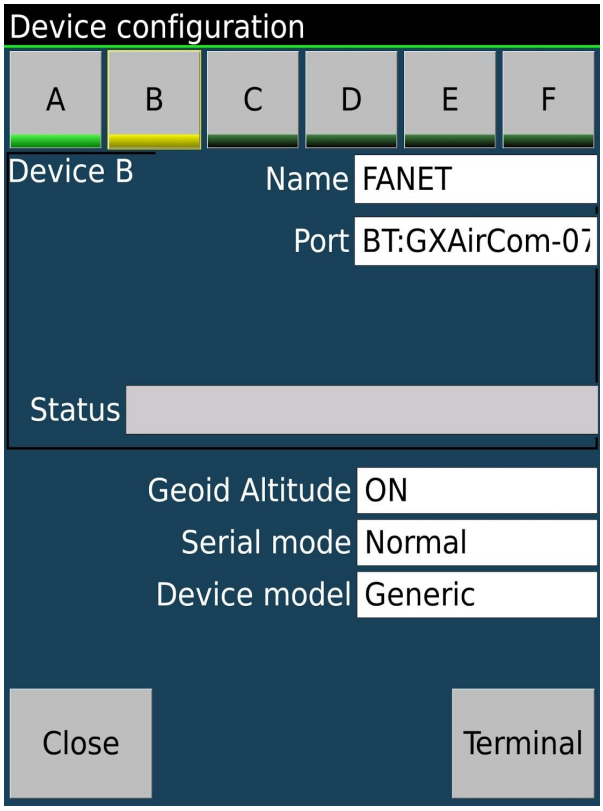
2. Go to Menu - Config 2/3 - LK8000 Setup - Device Setup

To enter Menu, click on the lower right corner over the "M" symbol.
Select Config (lower part of the screen) twice so it will take you to Config 2/3,and then select LK8000 Setup (top right of the screen), and then Device Setup (Top left of the screen).



3. Select Device B (Or whathever devices is available. Usually Device A has the Internal GPS)
   Name: FANET
   Port: Lookup for your paired GXAirCom-XXXXXX device

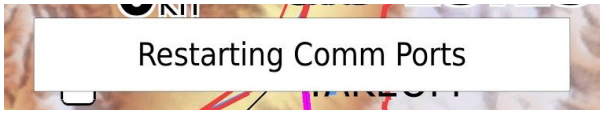
Click Close



4. A few seconds later you will see a message onscreen saying “Restarting Comm Ports”.
5. A few seconds after that message, you will see another message saying “FLARM DETECTED”.

This means that your flight computer (LK8000) has detected GXAirCom and it’s processing all the information that GXAirCom is gathering.

If by any chance the app does not restart the comm ports, you can always do it manual by going to “Menu - Config 3/3 - Reset Comms”



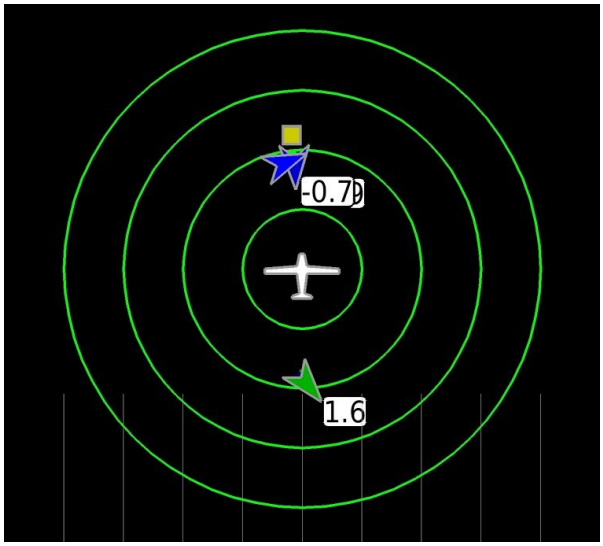
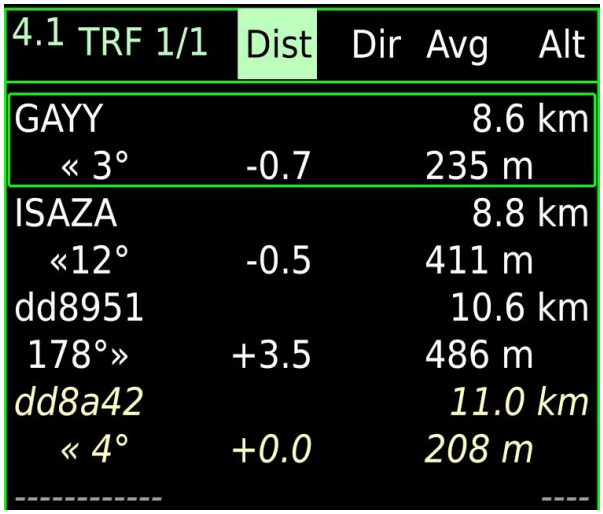
Before each flight.

If you have already connected your device as previous steps, the only thing you need to do is power on the GXAirCom, and then open LK8000 on the phone, verifying that the Bluetooth is enabled on the phone.
As soon as you have a gps lock on GXAirCom, and if there are any other FANET units in reach, you will start seeing them on the screen.

Using LK8000 with FLARM

GXAirCom is treated by LK8000 as a FLARM (acronym for Flight Alarm). Once LK8000 detects a FLARM device connected, it enables some screens that are usually hidden when no FLARM is available.

Main navigation screen with map, showing your aircraft and three other aircrafts detected by FLARM as green and yellow triangles. Verify that you have “Traffic on Map” enabled on “Menu - Config 2/3 - LK8000 Setup - System Setup - 13 Map Overlays”	

Radar page. Shows you the detected traffic and the distance as circular rings. Also vertical speed of traffic is displayed. It can also show the track that the traffic is making so you can fly to a climbing place where traffic has been and avoid sinking air. (Upper left corner for selecting track display mode)	
Information Page (4.1, 4.2, 4.3) On the information page you can see the received traffic as a list with some extra fields, like relative bearing, vario readings, altitude, and distance, as same as the broadcasted or edited name of the received device. You can select one of the traffic and click and hold in the middle of the screen to view that specific traffic, change calling name, and “target” to it, so you can follow easier with a navigation screen on 4.3.	

Troubleshooting

1. GXAirCom wont power on.	Connect it to an external power source with microusb cable. Check battery health. Remove and reinstall the battery (beware of the + and - signs)
2. GXAirCom wont connect to the phone	Try to restart both the phone and the GXAirCom. The LK8000 should be closed.
3. GXAirCom wont connect with LK8000	Follow step by step guide once more, on how to connect with LK8000. Restart LK8000 and

	check that the Device you used for receiving the GXAirCom info is selected under “Devices”.
4. I can’t see any traffic.	GXAirCom must have a GPS Fix in order to be able to “see” traffic, as it reports the traffic in relation to its own position, so even when it’s receiving traffic, is it does not know it’s own position i cant figure out how close or far away is the traffic. If your device has “Oled” screen, check that it’s receiving traffic on the oled screen (list, or closest).

Configuration Menu for GXAirCom

You can enter the configuration menu of GXAirCom in order to set or change some parameters according to your needs, or even use the “send messages” feature of the device to send short messages to other pilots using GXAirCom and LK8000.

To access the configuration menu follow this steps:

1. Power on the GXAirCom
2. Search for available wifi on your phone (or pc) and select GXAIRCOM-XXXXXX
3. Connect to the network using 12345678 as default password (you can change it on the settings but is not recomended as if you lose it you need to do a full flash). The phone could show a message saying internet is not available. Ignore the message and keep the connection (Wifi icon on the phone will show an exclamation mark).
4. Open up the browser and type 192.168.4.1 on the address bar and navigate to it (enter, go, ok).

You will see the configuration menu on the screen.

FINAL NOTES

GXAirCom is a work in progress. Newer versions can come up anytime. If anything does not work as expected, feel free to contact us to report and we will try to fix your problem or request.