

// GIGA PACKET MODEM

GPACKET User Manual

Setup & APRSdroid Connection Guide

**Giga
Technology** 
Unit 1, 13 Drakensberg Boulevard
Alrode South, 1451
Alberton
Gauteng
South Africa

Firmware V1.0

Tel: +27 (0)878976621 +27 (0)878025749
Whatsapp : +27 (0)645774970

This guide walks you through powering up the GIGA Packet Modem for the first time, connecting it to your Wi-Fi network, configuring your callsign, and pairing it with the APRSdroid app on Android over a TCP/IP (KISS) connection.

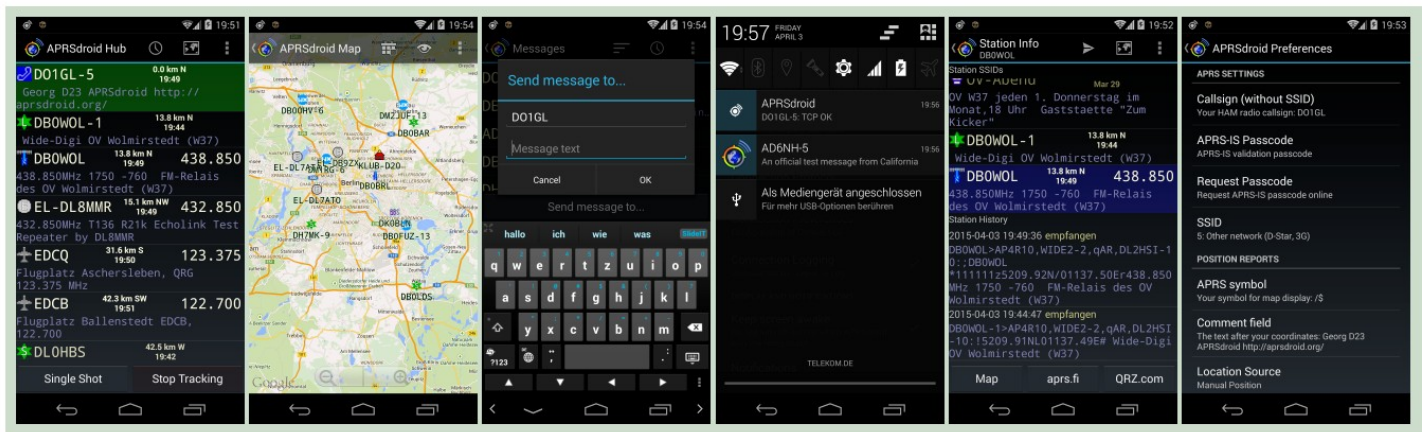
It assumes the modem hardware is already wired to your radio (audio in/out and PTT) and that you hold a valid amateur radio licence for transmitting on APRS frequencies in your region.

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APRSdroid

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1. What you need

Before starting, make sure you have the following on hand:

- **GPACKET Packet Modem** , powered by USB.
- A radio connected to the modem's audio and PTT lines, tuned to your local APRS frequency (commonly 144.800 MHz in Region 1, 144.390 MHz in North America).
- A 2.4 GHz Wi-Fi network the modem can join.
- A phone, tablet, or computer with a web browser for the dashboard.
- An Android device with **APRSdroid** installed (from the Play Store or F-Droid).
- Your amateur radio **callsign**.

Note

The modem and the device running APRSdroid must be on the **same Wi-Fi network**. APRSdroid connects to the modem by its IP address, so they need to be able to reach each other on the local network.

2. Powering up for the first time

Connect the modem to power via USB. On first boot — before it has any saved Wi-Fi credentials — it starts its own setup hotspot so you can configure it.

- 1 Plug in the modem and wait about 10 seconds for it to boot.
- 2 On your phone or laptop, open the Wi-Fi settings and look for a network named **GIGA-Setup**.
- 3 Connect to it using the password **12345678**.
- 4 Your device should open a setup page automatically. If it doesn't, open a browser and go to **http://192.168.4.1**.

What's happening

When the modem has no stored Wi-Fi network, it runs in *Access Point* mode and serves a Wi-Fi configuration page. Once you give it your network details, it switches to *Station* mode and joins your network like any other device.

3. Connecting the modem to your Wi-Fi

- 1 On the setup page (**http://192.168.4.1**), enter your Wi-Fi network name (**SSID**).
- 2 Enter your Wi-Fi **password** (leave blank only if the network is open).
- 3 Tap **Save & Connect**. The modem will try to join your network.
- 4 If it succeeds, the **GIGA-Setup** hotspot disappears and the modem is now on your main network. Reconnect your phone/laptop to your normal Wi-Fi.

Find the modem's new IP address

After it joins your network, the modem gets a new IP address from your router (for example **192.168.0.131**). You will need this address to open the dashboard and to connect APRSdroid. Check your router's device list, or watch the modem's USB serial output at 115200 baud — it prints the IP on connection. It is worth giving the modem a fixed/reserved IP in your router so it doesn't change.

4. Logging in to the web dashboard

- 1 In a browser on the same network, go to **http://<modem-ip>** (for example **http://192.168.0.131**).
- 2 At the sign-in screen, enter the default credentials below.
- 3 You'll land on the **Monitor** tab of the dashboard.

Default username	Admin
Default password	Admin

Change your password

Anyone on your network who reaches the modem can control your radio with the default login. Go to the **Security** tab and set a new username and password before regular use. Saving new credentials signs you out so you can log in again with the new ones.

5. Setting your callsign and modem options

Open the **Modem** tab. This is where you set your station identity and the on-air parameters.

My Callsign	Your licensed callsign, e.g. ZS6XYZ . The default NOCALL is for bench testing only — never transmit on air with it.
SSID	An optional 0–15 suffix that distinguishes your stations (e.g. -5 for a digi, -9 for mobile). Shown as CALL-SSID .
Baud Rate	1200 (Bell 202) for VHF/UHF APRS — the normal choice. 300 (Bell 103) is for HF.
Preamble (ms)	How long the transmitter keys up before data starts, giving the radio's VOX/PTT and the receiver's AGC time to settle. 300 ms is a good default; increase if the first bits get clipped.
Tail (ms)	A short trailing tone after the data. 100 ms is typical.
TX Amplitude	Audio drive level into the radio (0–100%). Start around 80% and adjust using the two-tone test (next section).

After changing anything here, tap **Save All**. Settings are stored in the modem's flash and survive reboots.

Beacon & Auto-ACK

Also on the Modem tab you'll find **Position Beacon** (periodically transmit your location) and **Auto-ACK** (automatically acknowledge messages addressed to you). Leave the beacon off until you've confirmed everything works, then set your latitude/longitude in decimal degrees (negative for South/West) and choose an interval.

6. Testing audio with the two-tone calibration

Before trusting the modem on air, confirm it is producing clean audio at the right level. The **Monitor** tab has a two-tone calibration panel.

- 1 Make sure your radio is connected and able to transmit (or monitor the modem's audio output on a scope or another receiver).
- 2 On the **Monitor** tab, find the **Two-Tone Calibration Test** panel.
- 3 Press **1200 Hz (Mark)** — the modem keys PTT and sends a steady 1200 Hz tone for the chosen duration.
- 4 Press **2200 Hz (Space)** and compare. Both tones should come out at the **same level**.
- 5 If one tone is louder, or the audio sounds distorted/clipped, lower the **TX Amplitude** on the Modem tab (or your radio's mic gain) until the audio is clean.

Target level

Aim for roughly -10 dBFS to -6 dBFS — loud enough to modulate cleanly but with headroom so the radio's own processing doesn't clip. Over-driving the audio is the most common cause of packets that won't decode.

7. Connecting APRSdroid over TCP/IP (KISS)

The modem runs a KISS TNC server over TCP on **port 8001**. APRSdroid connects to it as if it were a networked TNC. Make sure your Android device is on the same Wi-Fi network as the modem.

Configure the connection

- 1 Open **APRSdroid** and go to **Preferences** (the menu / gear icon).
- 2 Tap **Connection Preferences** → **Connection Protocol** and choose **TCP/IP**.
- 3 Tap **TNC (KISS)** as the connection type if prompted (APRSdroid uses KISS framing over the TCP link).
- 4 Under **Server** (or 'Host name'), enter the modem's IP address, e.g. `192.168.0.131`.
- 5 Under **Port**, enter `8001`.
- 6 Set your **callsign and SSID** in APRSdroid's station settings to match your licence (this is separate from the modem's own callsign setting).

- 7 Go back to the main screen and tap **Start Tracking** (the power/connect button) to open the connection.

Connection protocol	TCP/IP
TNC mode	KISS
Host / Server	The modem's IP address (e.g. 192.168.0.131)
Port	8001

When the connection succeeds, the dashboard's **Monitor** tab shows the **KISS** indicator lit, and the KISS pill reports 'client connected'. APRSdroid will now send and receive packets through the modem and your radio.

Web UI and APRSdroid can run together

From firmware V1.0 the modem's built-in APRS engine stays active even while APRSdroid is connected, so you can still send from the dashboard. The modem serialises transmissions internally, so the two never key the radio at the same time — whichever sends first transmits, the other waits its turn.

8. Sending your first packet

You can test transmission either from APRSdroid or from the modem's own dashboard.

From the dashboard

- 1 Go to the **Transmit** tab.
- 2 Leave **Destination** as **APRS**, set a digi path such as **WIDE1-1,WIDE2-1**.
- 3 Type a short message in the **Payload** box, e.g. **>Testing GIGA modem**.
- 4 Tap **Transmit**. The radio should key briefly. The frame appears in the **Transmitted Frames** panel on the Monitor tab.

Confirming it worked

If another station or an iGate hears you, your packet will appear on **aprs.fi** (search your callsign). Received packets from other stations show up in the **Received Frames** panel and, if APRSdroid is connected, on its map.

9. Sending APRS email (EMAIL-2)

The APRS network includes an email gateway. You send a specially formatted message and the gateway relays it as an email.

- 1 On the dashboard, open the **Messaging** tab and tap **Send Email (EMAIL-2)**.
- 2 Enter the recipient's email address and a short message (the whole thing is limited to 67 characters).
- 3 Leave **Request ACK** ticked so the modem knows the gateway received it.

- 4 Tap **Send**. The modem transmits the message to the `EMAIL-2` gateway.

How acknowledgements work

When the gateway receives your email it sends back an *ack* over RF, wrapped in a third-party frame. The modem recognises this, matches it to your message, and marks the message acknowledged — and the recipient gets the email. If you don't get an ack, the modem retries a few times.

Use email responsibly

The APRS email gateway is interactive and not meant for automated or blind sending. Don't beacon emails or send in bulk — gateway operators may block stations that abuse the service. Third-party traffic rules for your country also apply.

10. Troubleshooting

Symptom	Likely cause & fix
Can't find the GIGA-Setup hotspot	The modem already has saved Wi-Fi and joined your network. Find its IP from your router and go straight to the dashboard. To force setup mode again, clear its stored credentials (re-flash or use the reset described in your build notes).
Dashboard won't load at the IP	Confirm your browser device is on the same network as the modem. Double-check the IP (it may have changed if not reserved). Try power-cycling the modem.
APRSdroid won't connect	Verify protocol = TCP/IP, mode = KISS, host = modem IP, port = 8001. Make sure the phone is on the same Wi-Fi. Only one KISS client can connect at a time — disconnect any other.
Audio meter shows nothing on receive	Check the cabling from the radio's audio out to the modem. Make sure the radio's volume/squelch is open enough to pass audio. Confirm on the Monitor tab that the Audio In bar moves when a signal is present.
Transmits but no one decodes me	Almost always TX audio level. Run the two-tone test and reduce TX Amplitude / mic gain until the tones are clean and equal. Check PTT is actually keying the radio.
Received frames marked CRC / red	The frame arrived corrupt — usually weak signal or RX audio level. These are shown only if 'Show BAD frames' is enabled (a debug option on the Modem tab). Good frames are unaffected.
Email sent from web UI does nothing	In older firmware a connected KISS client blocked the web UI from transmitting. V1.0 fixes this. If it still won't send, check the channel isn't permanently busy and that your callsign is set (not NOCALL).

11. Quick reference

Setup hotspot SSID	GIGA-Setup
Setup hotspot password	12345678
Setup page address	http://192.168.4.1

Dashboard default login	Admin / Admin
KISS TNC port (APRSdroid)	8001 (TCP/IP, KISS)
Default mode	1200 baud, Bell 202 (1200 / 2200 Hz)
APRS email gateway	EMAIL-2, 67-char limit, request ACK
More info	www.giga.co.za

GIGA Packet Modem · Firmware V1.0 · This manual covers first-time setup and APRSdroid pairing. For firmware updates and further documentation, visit www.giga.co.za.

I gate view of packets transmitted

