



TEK 880 Cellular Radar Sensor BLUETOOTH (BLE) Smartphone App User Guide

Edit History

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Contents

1	Introduction	3
2	Installation.....	3
3	Using App for first time	4
4	Settings menu	5
5	Devices list.....	8
6	Device chat screen	10
7	APPENDIX.....	13

1 Introduction

The TEK 880 LTE Radar sensor contains an inbuilt BLE (Bluetooth Low Energy) module that, once activated, allows BLE communications with a BLE enabled smartphone.

The Tekelek Radar smartphone BLE app was developed to facilitate installation and debugging for the TEK880 Radar Sensor. It enables the user/installer to perform tasks via text-based commands such as the activation/deactivation of the device, setting the tank height, debugging communication issues and taking distance measurements and uploading these measurements to the server. The BLE app communication range depends on a number of installation factors but is typically in the range 10..25 metres. Please observe ATEX / Hazloc safety precautions where appropriate.

Prerequisites:

- Apple iPhone with iOS v8+ OR
- Android Smartphone v8 – v12 *
- Bluetooth Low-Energy (BLE) v5+
- Active internet connection (required to update commands list).

* There are many Android phone variants on the market, some have non-standard customizations which can prevent access to the Bluetooth or other peripherals unless disabled or overridden. Please consult the phone manual if any problems occur.

2 Installation

- 1) Open iOS App Store or Google Play store.
- 2) Search and Install “Tekelek Radar”.
- 3) Once installed – Log into the app with the following credentials:
 - a. Username – “Admin” (This is currently fixed).
 - b. Password – Tek2qt36A*

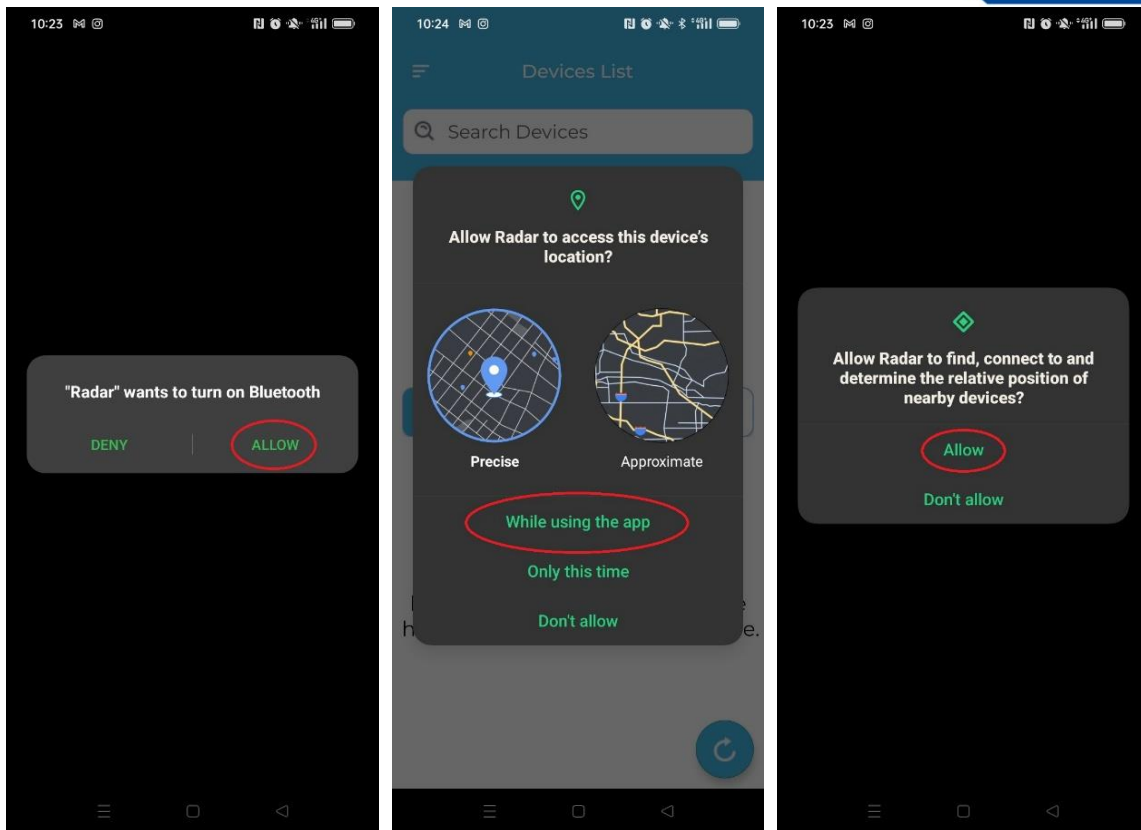


3 Using App for first time

Once the password has been successfully entered, the App will load the Devices List screen. This screen will display all compatible TEK880 devices.

With some phones, one or more of the following app services/permissions must be enabled to allow the app to function correctly *. Disabling any these settings will prevent the app from working.

- Bluetooth (On)
- Location services (Enabled).
- Nearby devices (Enabled)

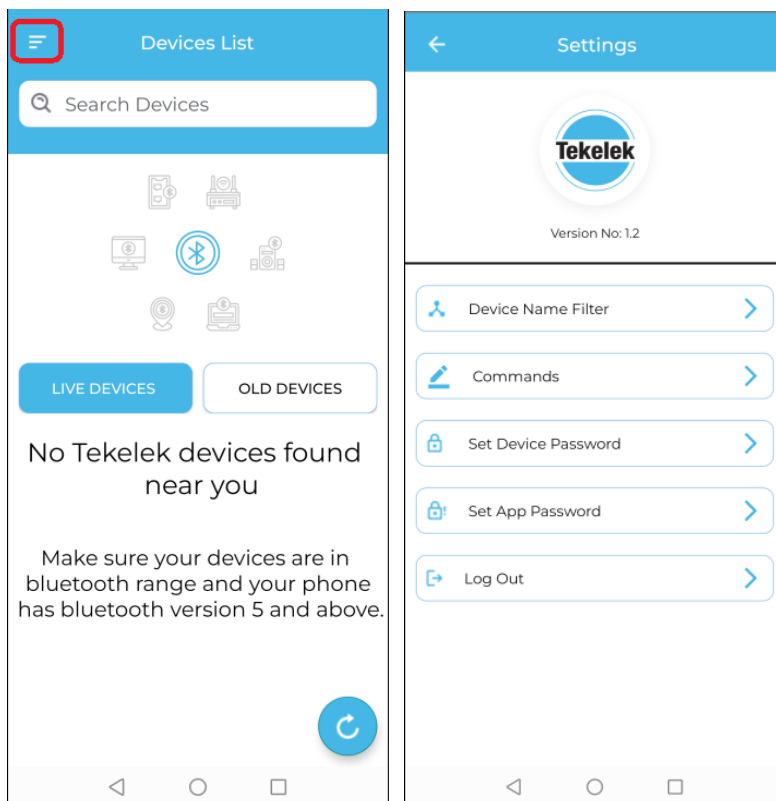


* The precise wording and layout of these permission popups may vary depending on the smartphone variant.

4 Settings menu

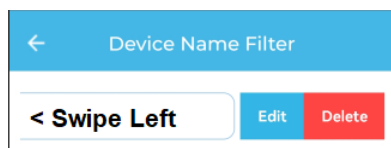
Prior to connecting to any TEK880 Radar devices, any additional setup of the phone can be performed by navigating to the Settings menu. The Settings menu icon is located in the top left of the devices screen.

This allows several important changes to be made to ensure correct interaction with your device.



4.1 Device Name Filter – Tekelek Radar Bluetooth devices broadcasts a customer-defined suffix of up to 6 characters followed by the last three digits of the IMEI number. The suffix can be specified by the customer prior to production.

- A new device name filter can be added by selecting the “+” icon.
- Alternatively, swipe the existing filter left to edit or delete it.



- Default device name filter: TEK880

4.2 Commands

4.2.1 The TEK880 device can be interacted with using text-based commands. These commands are grouped as “Settings” and “Requests”.

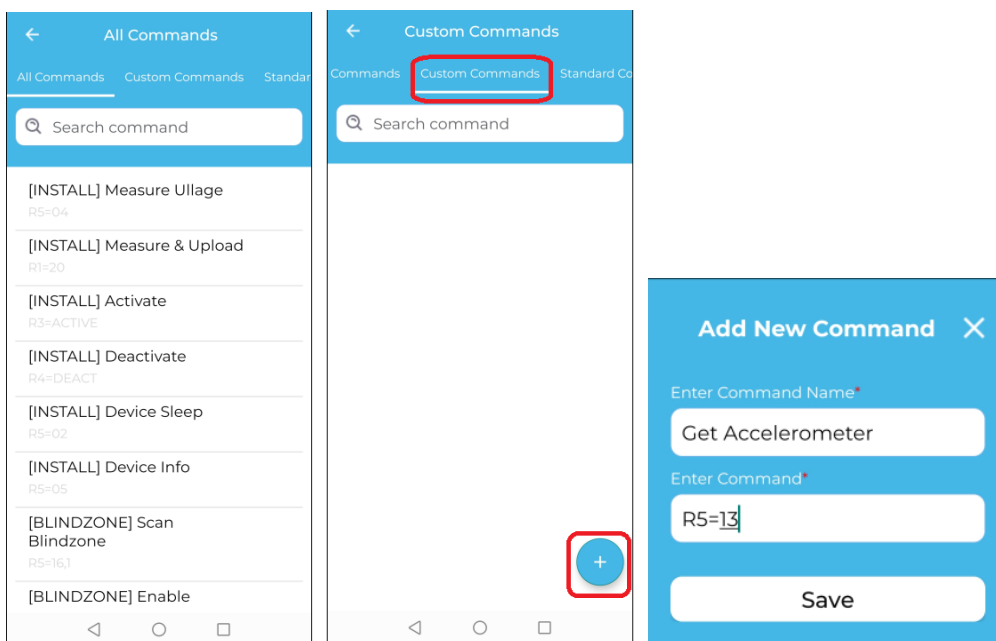
For a full description of the “S” and “R” commands, see the TEK880 user manual.

4.2.2 The default “standard” commands are displayed first. These should be sufficient for typical use-cases.

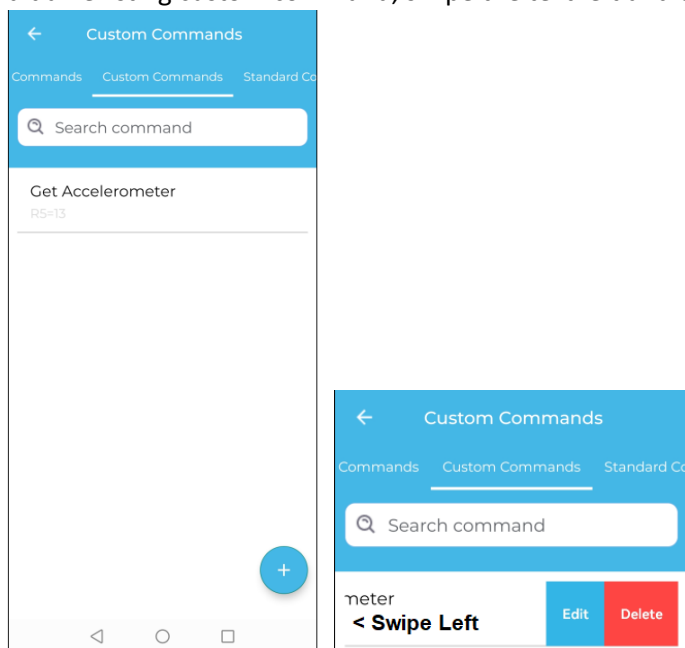
4.2.3 However, to create a custom command, simply click the “Custom Commands” tab.

Press “+” to add a new command.

WARNING – Knowledge of the TEK880 command structure is required. It is possible to misconfigure your device if an incorrect command is entered.



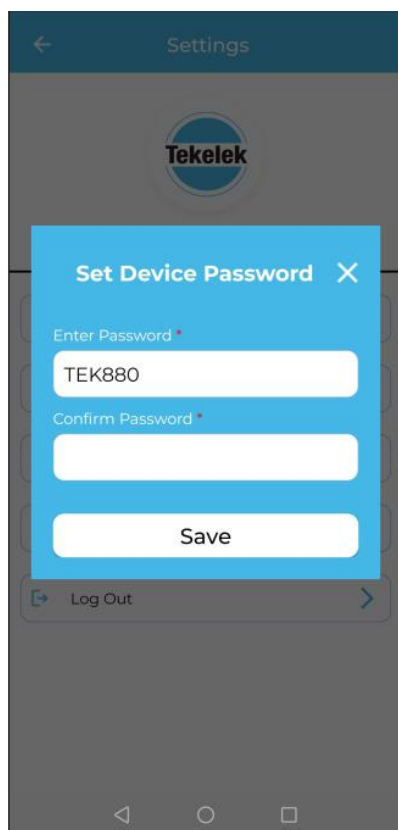
4.3 To Edit an existing custom command, swipe the text left and choose “Edit”.



4.4 Set Device Password – The command text on TEK880 devices is preceded by a device password, up to 6 characters long. This will be agreed with the customer prior to production and will ensure a 3rd party cannot communicate with the device.

4.4.1 The default device password is “TEK880”.

4.4.2 Selecting this option prompts the user to edit the password.



4.5 Set App Password – Select this option to change the password used to log into the app.

4.5.1 The default password can be obtained from: sales@tekelek.com

4.5.2 The username “Admin” is currently fixed so cannot be changed.

4.6 Log Out – Select this option to log out of app.

4.6.1 The next time the app is opened, the password will need to be reopened.

4.7 Press the Back arrow ← to return to the previous screen.

5 Devices list

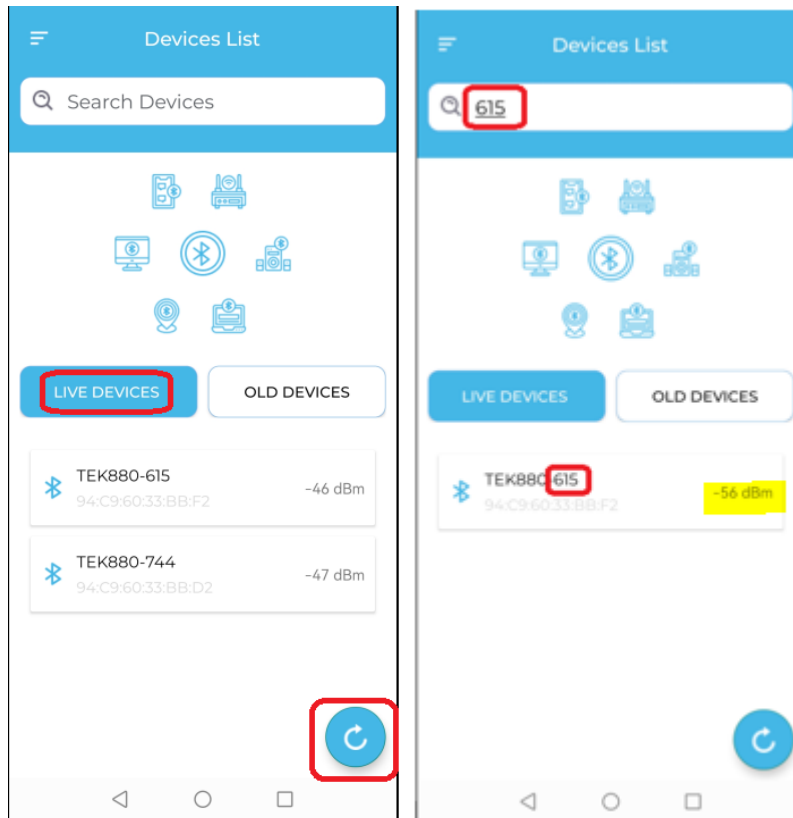
This section assumes Bluetooth and all relevant app permissions are enabled.

The devices list shows all compatible BLE devices that are currently broadcasting. It also allows historical chats to be reviewed.

5.1 Wake up TEK880 device by placing a magnet over the Logo (Hot Spot) for 2 seconds, or until the device starts emitting a “double beep” once per second. This indicates the device is in Bluetooth broadcast mode.

Refer to document 9-6210 TEK 880 LTE Radar Installation and User Guide if needed for further information.

5.2 Press the “Live Devices” or “Refresh” button to scan for any Bluetooth devices in the vicinity. Note the device list will only be populated by devices that broadcast using a name contained within the Device Name Filter (See Settings menu).



5.3 If required, Use the “Search Devices” box to perform a wildcard search on part of the broadcast name to narrow down the devices list.

5.4 The Bluetooth Signal Strength (highlighted above) is displayed on the right hand of each broadcasting device in the list. It is preferable that the user be within range of the radar sensor such that the signal strength does not exceed -70 dBm.

5.5 Select the device to communicate with.

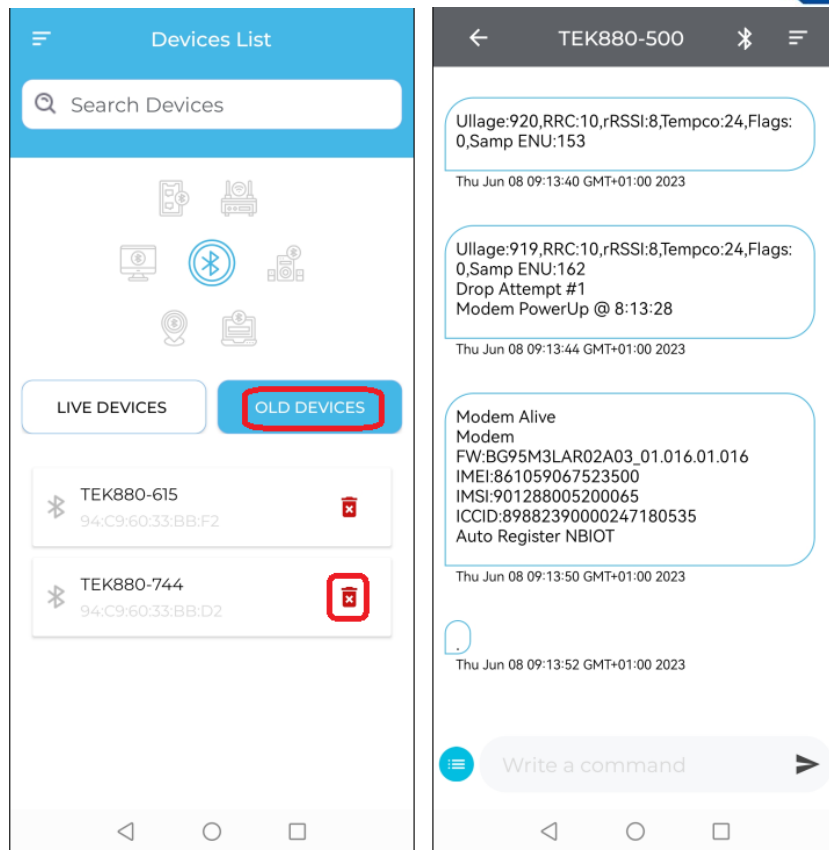
5.5.1 See device chat screen for more details.

5.6 To review historical chats with previous/offline devices, press “Old Devices”.

5.6.1 The top banner will be Grey to indicate it’s an offline/historical chat.

5.6.2 See device chat screen for more details.

5.6.3 To delete historical chat, press the delete button.



6 Device chat screen

Interaction with the device resembles a “Whatsapp” style messaging screen. This allows for a rich level of interaction and diagnosis including historical communications with the device.

Each time a command is sent, the device password (accessible via the Settings screen) is inserted in front of the command text, and a Cyclic Redundancy Check (CRC) is appended to the end of the command text to ensure any corruptions to the text do not interfere with the device.

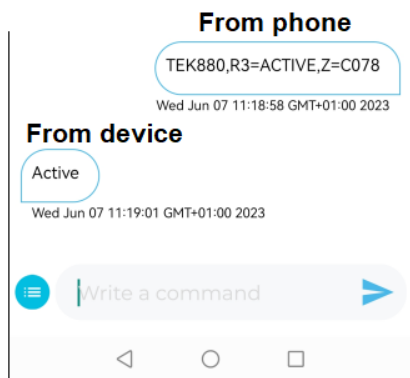
6.1 The Device name is displayed along the top of the screen.

- 6.1.1** If the connection is live, the text background is Green. If turns Grey if the chat becomes disconnected, or historical chats are being reviewed.
- 6.1.2** The chat screen resumes any previous communications saved from that device, so the users phone can store and view the full chat history

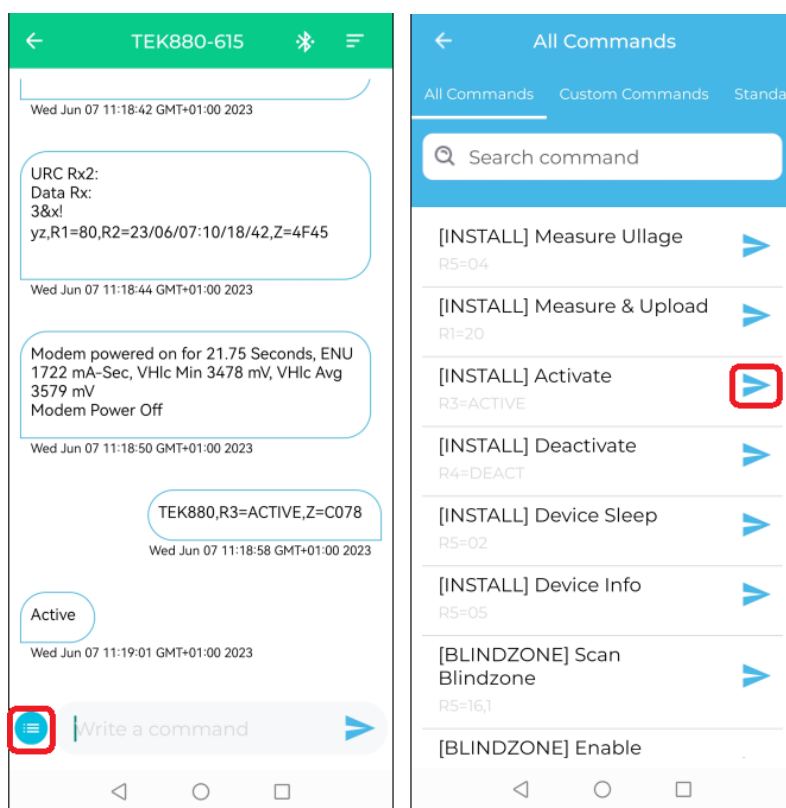


6.2 The Chat messages are organised in “speech bubbles”.

- 6.2.1** The Phone → Device messages are on the right side of the chat window.
- 6.2.2** The Device → Phone messages are on the left side of the chat window.
- 6.2.3** The Timestamp for each chat is visible beneath each chat bubble.



6.3 Press the Commands icon at the bottom left of the screen to display a list of commonly used commands.



6.3.1 The commands list is similar to the list accessible via the Settings page, but with a “Quick Send” Icon → to immediately send the desired command to the device.

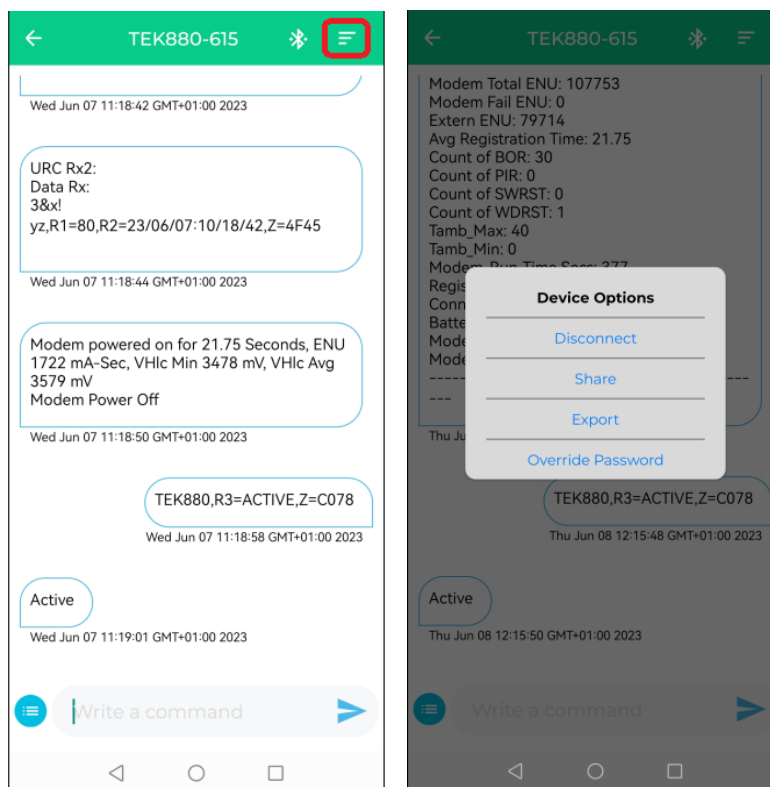
6.3.2 If no command is selected, Press Back ← to return to Chat screen.

6.4 If the text command is known it can be manually entered into the chat box *. The device password is automatically added to the beginning and end of the text command.

* Warning – Entering incorrect data when creating a manual text command could cause the device to malfunction.

6.5 Press ← To return to the devices list at any time.

6.6 Press the Device Options icon at the top right of the screen to display device specific options.



6.6.1 Disconnect – Press this to disconnect the Bluetooth connection. The chat screen will continue to display the historical chat logs, but will indicate the device is now disconnected by turning the top banner grey.

6.6.2 Share – This allows the chat log text file to be sent to a 3rd party app via the Phones share function. Note the share options will depend on the supporting apps currently on installed on the phone. Share examples include Gmail, Outlook and Whatsapp.



- 6.6.3** Export [Android version only] – Export the chat history log to the phone’s memory. Note its specific location may vary depending on the phone manufacturer.
- 6.6.4** Override password – Allows the Device Password (set in the Settings Screen) to be overridden on a device specific basis.
- For example, if the default app password is “TEK880” but in some use-cases a subset of the devices might need to be changed “DEV001”.
- 6.6.5** If no command is selected, Press Back ← to return to Chat screen.

7 APPENDIX

9-6210 TEK 880 LTE Radar Installation and User Guide