

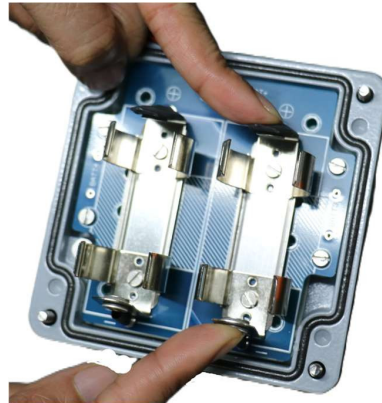


Figure 5-7

- Align the positive (+) side of the batteries with the + indicator in the battery holder.

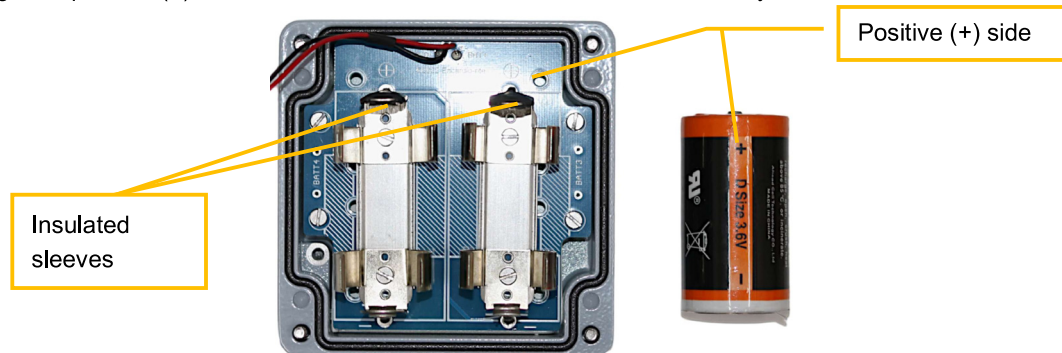


Figure 5-8

- Slide the positive end of the battery inside the compartment first. Installing the positive end first allows the battery to slide into the compartment more easily. Just push the positive end of the battery into the lever, flattening it down into the holder. Apply a bit more pressure, if necessary, to snap the negative end of the battery securely into place.

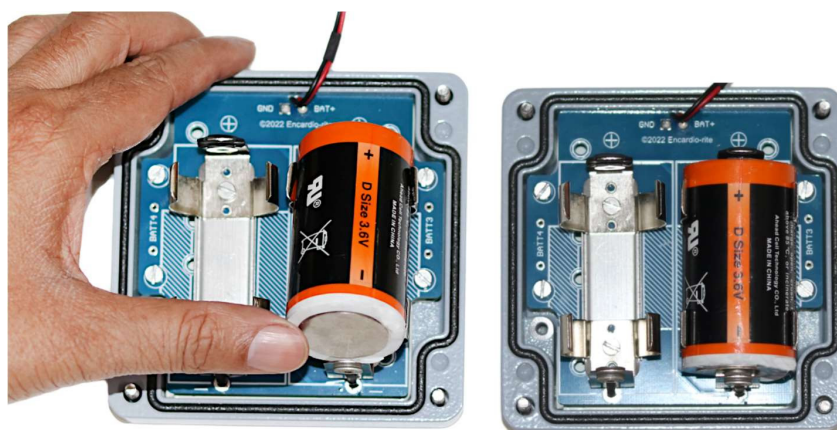


Figure 5-9

- In case fast scanning is required, connect any standard DC power adaptor (9 V, 1 A) to "DC Input".
- Or, Encardio rite make solar battery charger can also be used (available against order).
- After power up, wait for 30 seconds as during this time tilt meter performs internal operations.

5.3 Connection VW Node to phone

Install the apk file (provided with the supply) for the "EWA-01" app on the phone. App shortcuts will be available in the list of application software, Open the application and allow all the permissions required for proper functioning.

5.3.1 Connection through OTG

- Switch on the Node and connect it to the Smartphone using the FTDI to OTG adaptor provided with the supply, as shown in Figure 5-11-1 below.



Figure 5-11-1 EWN-01V VW node connected to Android phone with FTDI cable via OTG adaptor

5.4 VibraLink Node configuration

The VibraLink node is configured using the EWA-01 Android application. Ensure the Hub (Gateway) is configured and powered on before configuring the VibraLink nodes. Configuration can be done via USB OTG. The following subsections detail the configuration process.

- Open the "EWA-01" apk installed on an Android phone. It will show the list of paired Nodes. Select the Node that you paired earlier from the list. It will take you to the home screen of the Node.

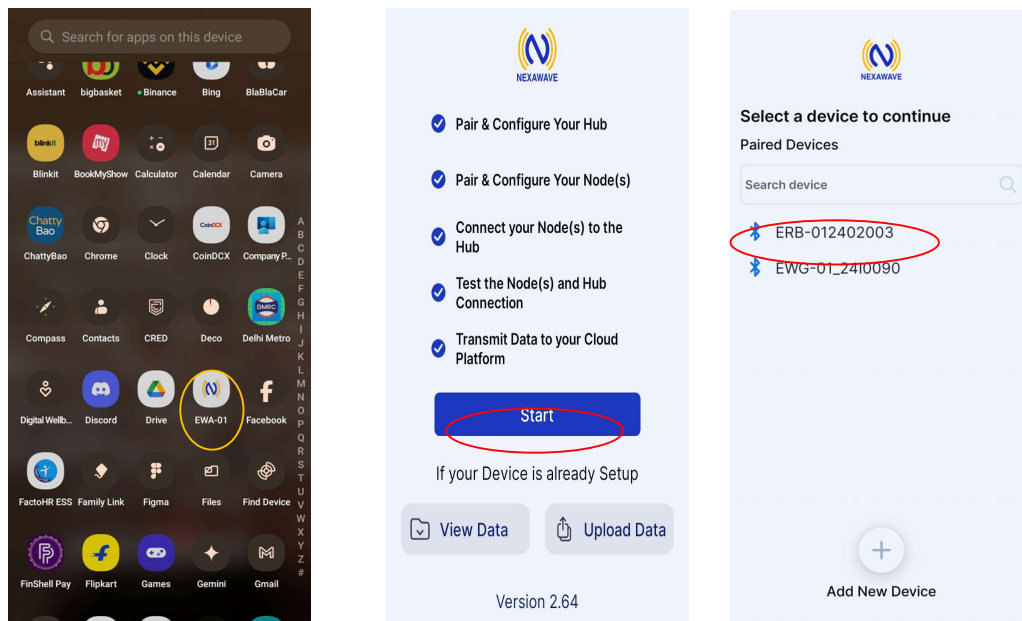


Figure 5-11

- It will take you to the home screen of the VibraLink, as shown in Figure 5-12 (a). Clicking on the 'i' button (Figure 5-12 (b)) will open the information window. Within this window, you can scroll to view information about the VibraLink, sensor, sampling, battery, and the phone (Figure 5-12 (c)).

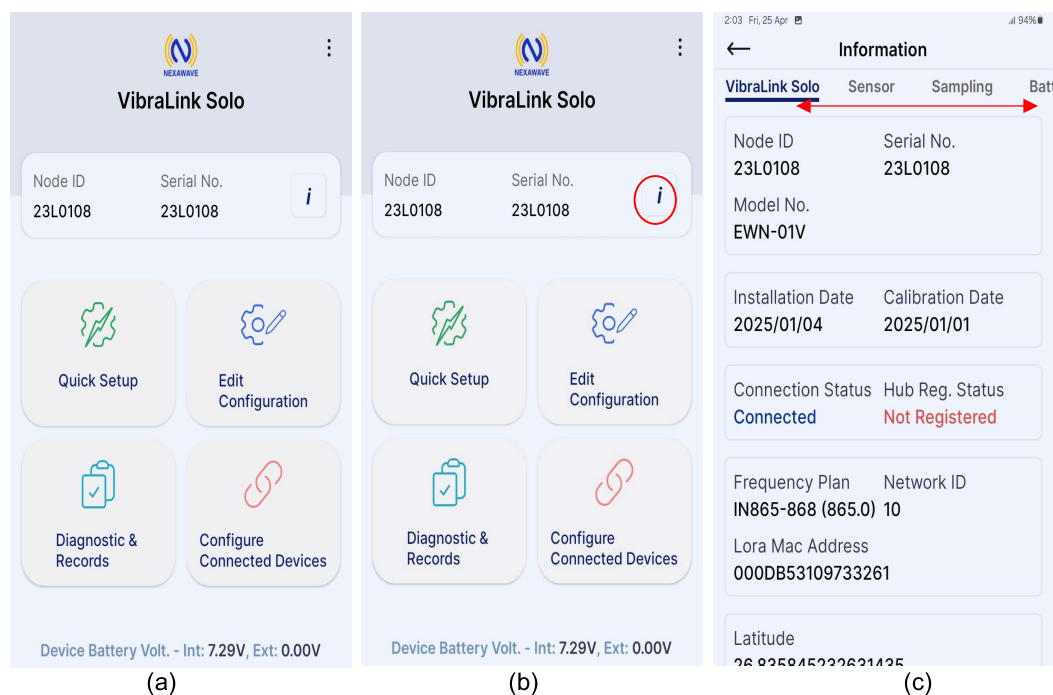


Figure 5-12

Resetting Your Vibralink Node: Factory Default and Memory Erase Procedures

To access the reset options, navigate to the Advanced Settings menu. This is achieved by clicking the three dots located in the top left corner of the screen.

Factory Default

The Factory Default reset restores the VibraLink node to its original factory configuration, erasing all user-defined settings and data.

Important: While user-configured data will be lost, any settings configured at the factory will be retained. This reset is useful for troubleshooting, preparing the device for a new user, or if other configuration changes have led to unexpected behavior.

Caution: All user-generated data will be permanently erased. It is strongly recommended to back up any critical data before performing a factory reset. Data lost through this process cannot be recovered.

To reset the Node, click on the "Reset VibraLink to Factory Default" tab from the advance setting. A prompt window asking for a reset password will appear.

Enter the password "4TfZ9q7X" and click on the "OK" button to reset the Node.

Erase Node Memory

The "Erase Node Memory" function clears all previously stored logs on the VibraLink node. This is often performed to clear old logs, free up storage space, or as part of a security or privacy protocol.

Caution: Erasing the node memory is irreversible. **Ensure you have archived any necessary logs before proceeding**, as they cannot be recovered after deletion.

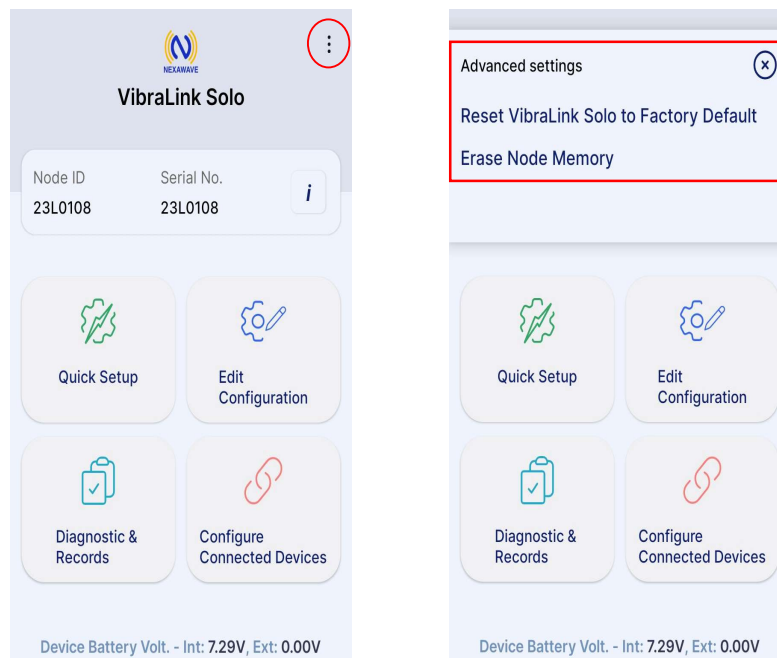


Figure 5-13

On the home screen, click on "QUICK SETUP" to configure the VibraLink. This simple five-step process guides you through the setup. A brief, step-by-step guide is provided below:

5.4.1 Quick Setup

Step 1: Set the Configuration

- **VibraLink ID:** Input "VibraLink ID" of their choice. Try to input some meaningful ID so that it becomes convenient for other users also.
- **Installation Date:** Click on the "Calendar Icon" to enter the installation date of the gateway.
- **Relay Hopes:** Select the relay hopes from drop-down menu which is closer the node.
- **Frequency Plan:** Select the "Frequency Plan" from the drop down. This depends on the installation location, to comply with the local regulations. User can select the region and associated frequency by tapping on the search icon.
- **Network ID:** User can select any of the Network ID from the "Network ID" drop-down menu. It is important to remember that the network ID should remain consistent throughout the entire network, including all nodes and the gateway. Note down the configured Gateway Network ID as it will be necessary for node configuration.
- **Location:** For setting Latitude and Longitude of respective installation location:
 - If user knows the installation location coordinates, enter the Latitude and Longitude information manually.
 - If user does not know the installation location coordinates, select the button "Select on map" for automatic location setup. This needs to be done at the installation site location only. Ensure that the internet connectivity is there in the phone during this process.
- **Device Date & Time:** To set the RTC (date and time) of VibraLink, click on the "Calendar" and "Clock" icons given in line with "VibraLink date" and "VibraLink time". Click on the "Update Date/Time" tab to save it. To synchronize the VibraLink RTC with phone's RTC, click on the "Sync with phone" tab. Make sure that the phone's RTC is up to date and correct.
- Click on the Save & Next button to move step-2.

Quick Setup

1 2 3 4 ✓

Set the Configuration

VibraLink Solo ID

23L0108

Installation Date 2025/04/25

Relay Hopes No Relay

Frequency plan IN865-868 (867.0)

Network ID 10

Location

Latitude 26.835845232631435

Longitude 80.89223768911825

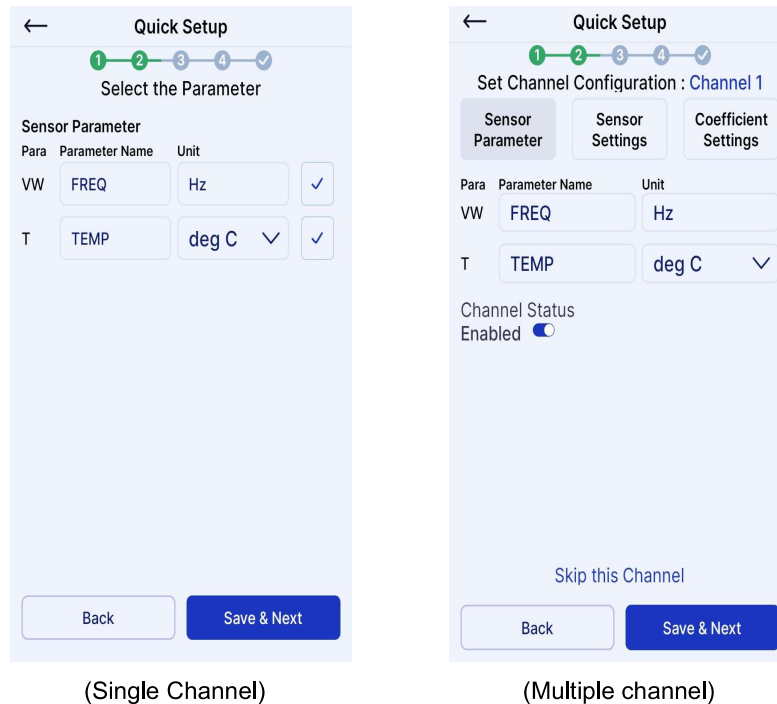
Device Date & Time 2025/04/25 14:06:51

Skip Save & Next

Figure 5-14

Step 2: Select the parameter

- This screen allows users to select the sensor parameters for monitoring. For a vibrating wire sensor, choose FREQ (Frequency) in Hz, and for temperature sensors, select TEMP (Temperature) in deg C. After selecting the required parameters, tap Save & Next to proceed. Repeat this process for each channel you will be using for vibrating wire measurements. Once you have confirmed the parameter and unit for all desired vibrating wire channels, you can proceed to the next step.

**Figure 5-15****Step 3: Set the Sensor Settings**

- This screen allows users to configure specific settings for the connected sensor. Enter the Sensor ID, Sensor Manufacturer, and Sensor Model. Provide the Sensor Serial No. and any relevant Sensor Comments. Set the Number of Steps, Pulse for Average, Start Frequency (Hz), and End Frequency (Hz) as required for the sensor's operation. Repeat this process for each channel you will be using for vibrating wire measurements. Once you have confirmed the parameter and unit for all desired vibrating wire channels, you can proceed to the next step. Once done, tap Save & Next to proceed.

The figure shows two side-by-side screenshots of the 'Quick Setup' interface. Both screens have a progress bar at the top with steps 1, 2, 3, and 4. Step 2 is highlighted, indicating the current step is 'Set the Sensor Settings'.

(Single Channel): The screen is titled 'Set the Sensor Settings'. It contains the following fields:

- Sensor ID: XXXXXXX
- Sensor Comments: XXXXXXX
- Sensor Manufacturer: Any Mfr (dropdown)
- Sensor Model: Custom (dropdown)
- Sensor Serial No.: XXXXXXX
- No. of Steps: 200
- Pulse For Avg.: 256 (dropdown)
- Start Frequency (Hz): 400
- End Frequency (Hz): 6000

 At the bottom are 'Back' and 'Save & Next' buttons.

(Multiple channel): The screen is titled 'Set Channel Configuration : Channel 1'. It has three tabs: 'Sensor Parameter', 'Sensor Settings', and 'Coefficient Settings'. The 'Sensor Settings' tab is active. It contains the same fields as the single channel screen. At the bottom, there is a 'Skip this Channel' link above the 'Back' and 'Save & Next' buttons.

Figure 5-16

Step 4: Set the Coefficient

- This screen allows users to input the coefficients for the sensor's calculation formula. Enter the values for Coefficient A0, A1, A2, A3, A4, and A5 based on the sensor's specifications. These coefficients are used in the equation:

$$P = A_0 + A_1 \cdot f + A_2 \cdot f^2 + A_3 \cdot f^3 + A_4 \cdot f^4 + A_5 \cdot f^5$$
 where f represents the frequency.
- Additionally, set the Thermistor value, typically 3K at 25°C. After entering the required data, tap Save & Next to proceed. Repeat this process for each channel you will be using for vibrating wire measurements.

The figure shows two side-by-side screenshots of the 'Quick Setup' interface, specifically the 'Set the Coefficient' screen. Both screens have a progress bar at the top with steps 1, 2, 3, and 4. Step 3 is highlighted, indicating the current step is 'Set the Coefficient'.

(Single Channel): The screen is titled 'Set the Coefficient'. It displays the equation $P = A_0 + A_1 \cdot f + A_2 \cdot f^2 + A_3 \cdot f^3 + A_4 \cdot f^4 + A_5 \cdot f^5$. Below the equation are input fields for Coefficient A0 through A5, all set to 0.000000E+00. There is also a 'Thermistor' dropdown menu set to '3K at 25°C'. At the bottom are 'Back' and 'Save & Next' buttons.

(Multiple channel): The screen is titled 'Set Channel Configuration : Channel 1'. It has three tabs: 'Sensor Parameter', 'Sensor Settings', and 'Coefficient Settings'. The 'Coefficient Settings' tab is active. It displays the same equation and coefficient input fields as the single channel screen. At the bottom, there is a 'Skip this Channel' link above the 'Back' and 'Save & Next' buttons.

Figure 5-17

Test Sensor Reading

- In this step, user can test the sensor readings for FREQ (Frequency) and TEMP (Temperature). The last read values for each parameter will be displayed, along with Noise and Period. Tap Take Reading to get real-time data from the sensor. Ensure the Noise remains below Max 1 Hz for accurate readings. If needed, you can also adjust Advanced Settings. Once the test is complete, tap Back or Save & Next to proceed.

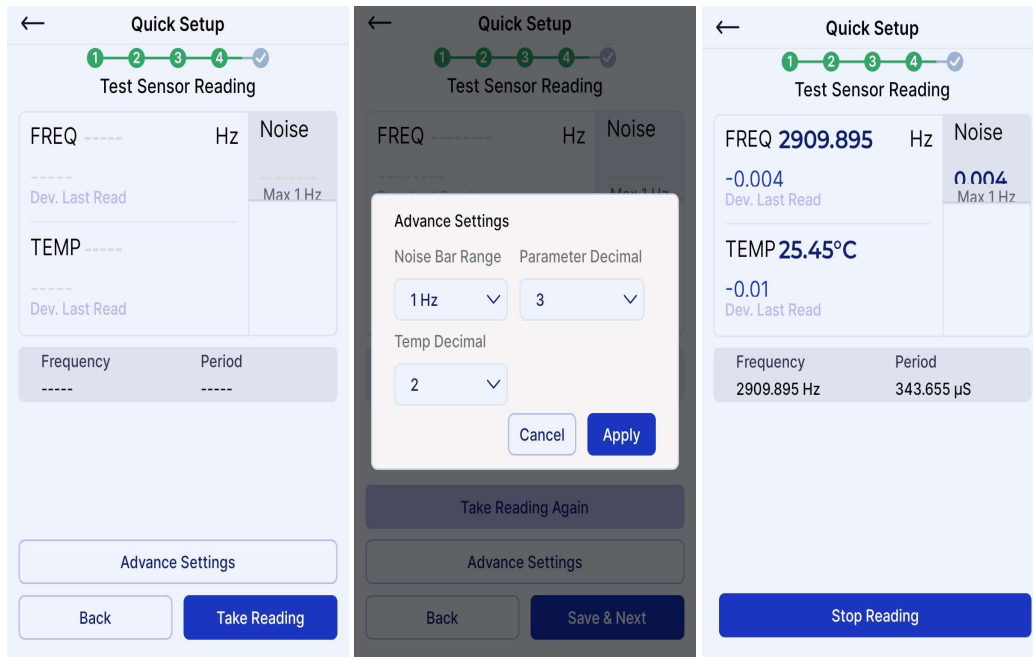


Figure 5-18 (Single channel)

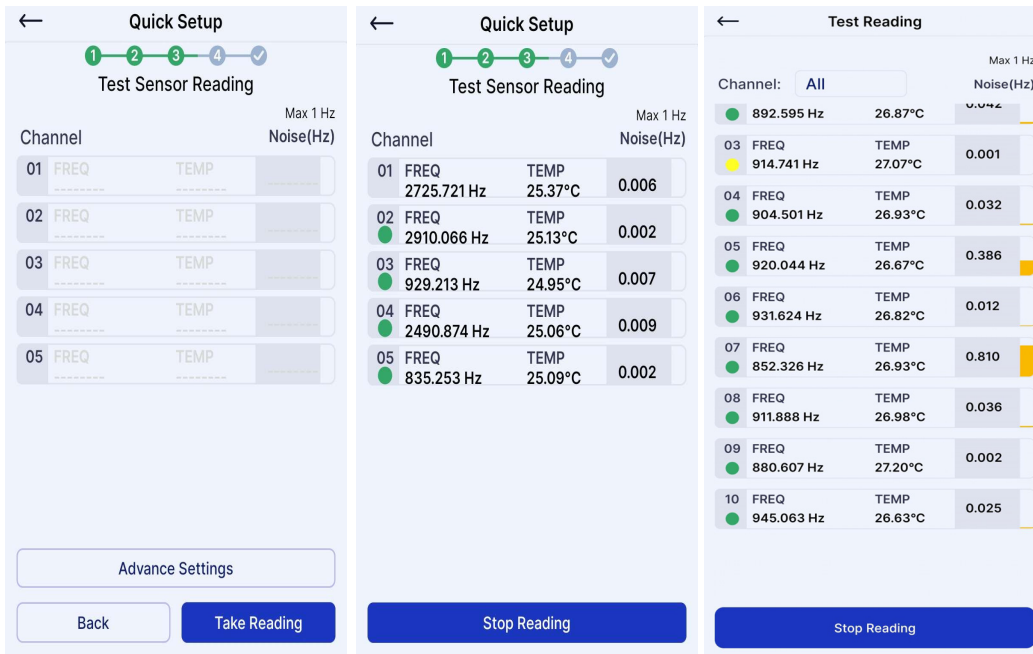


Figure 5-19 (Multiple channel)

Test Hub & VibraLink Connection

- In this step, users can test the connection between the VibraLink Solo and the Hub. The Network ID, Frequency, and Tx Power are displayed. The screen shows real-time data for RSSI, dBm, and μ W for both the VibraLink Solo and Hub.
- To start the test, tap Start Test. The Test Packet Status will show the number of received packets and the pass/fail percentage. If the connection is successful, user will see GOOD to Go!. Once the test is complete, tap Stop Test to end the process.

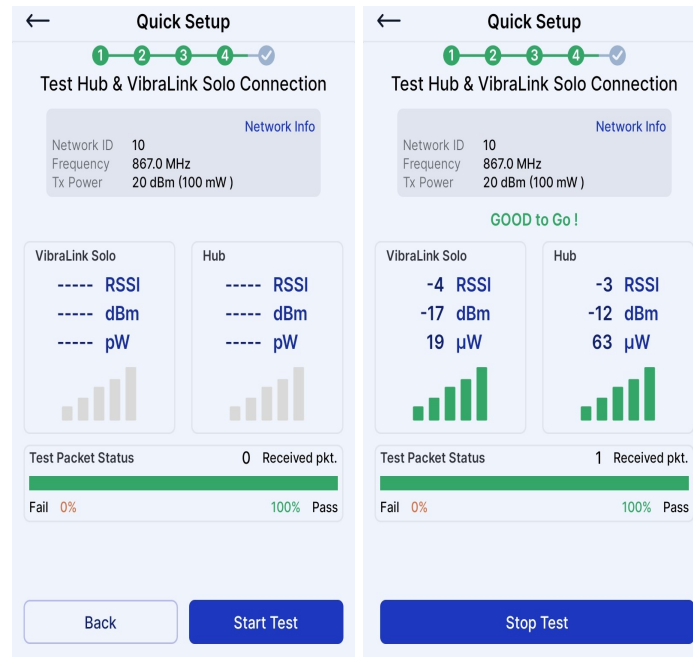


Figure 5-20

Test Hub & Vibralink Connection (Register) screen

- After successfully testing the connection, tap **Register With Hub** to register the **VibraLink** node with the Hub. A progress bar will appear, showing the registration process. Once completed, user will see a **Node has been registered to Gateway successfully!!** message indicating that the node is successfully connected to the gateway.
- If needed, you can tap **Test Again** to re-run the connection test or **Cancel** to exit. The **Test Packet Status** will show real-time data for the connection, including received packets and pass/fail status.

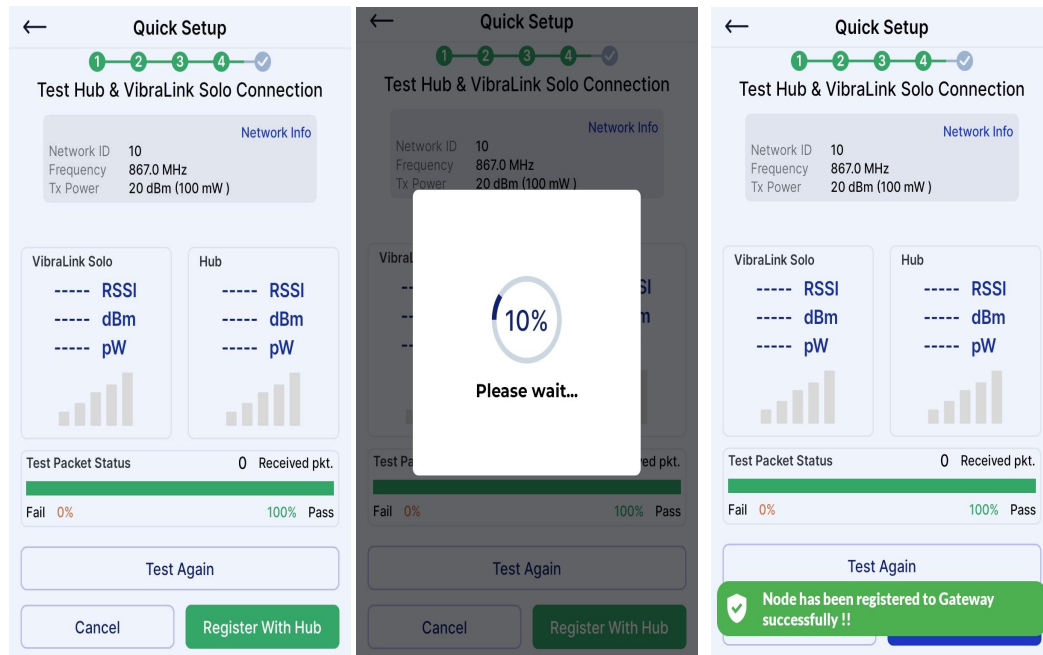


Figure 5-21

Finish setup

- Once the **Test Hub & VibraLink Solo Connection** is successfully completed, tap **Finish Setup** to finalize the configuration. This will complete the process of connecting the node to the network. User will see a **Setup Complete** message confirming that the node has been successfully set up.
- If user'd like to set up another device, tap **Setup Another Device**. To return to the home screen, tap **Back to the Setup Home**.

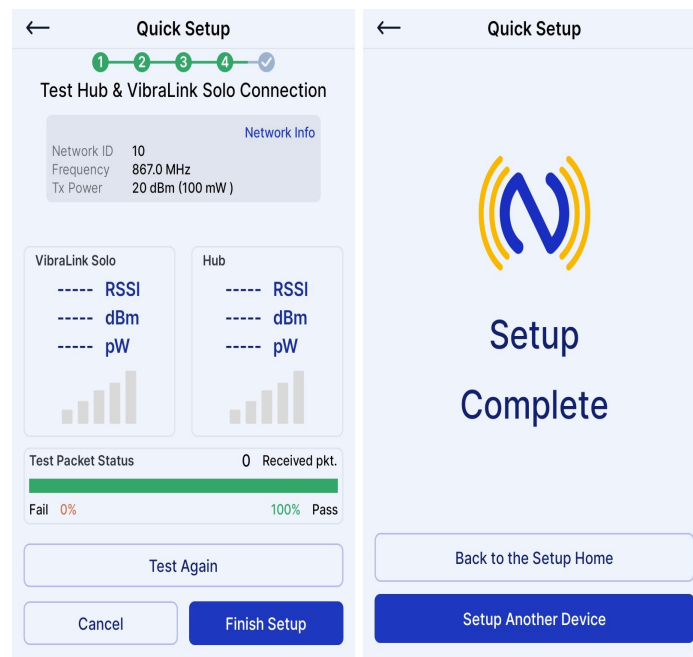


Figure 5-22

5.4.2 Configuring Sensor's Coefficients and information

- To modify the **VibraLink Solo** settings after the initial or quick setup, tap **Edit Configuration** on the main screen to configure the sensor's parameters like model, coefficients, sensor serial number, sensor tag etc.

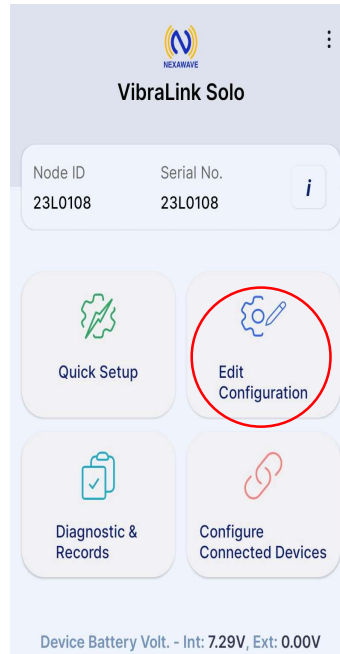


Figure 5-23

- After clicking **Edit**, users can modify several configuration settings for the **VibraLink Solo** node. This includes updating the **VibraLink Solo ID**, **Installation Date**, and **Relay Hopes** (e.g., selecting **No Relay**). You can also adjust the **Frequency Plan** (e.g., **IN865-868 (867.0)**), change the **Network ID**, and update the **Location** by modifying the **Latitude** and **Longitude** values. Additionally, the **Device Date & Time** can be corrected for accurate data logging. After making the necessary adjustments, tap **Save** to apply the changes or **Cancel** to discard them.

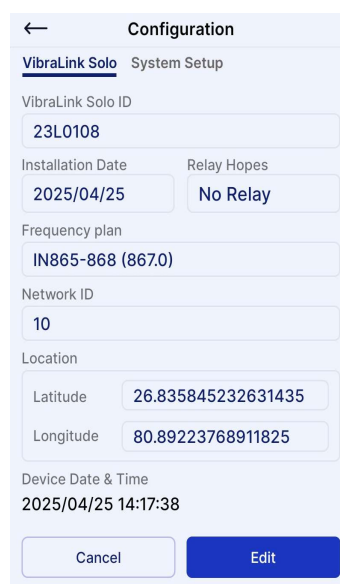


Figure 5-24

- After selecting Edit Configuration, user can configure the Channel settings for the VibraLink node. Choose the Sensor Parameter (e.g., VW (Frequency) in Hz and TEMP (Temperature) in °C) to specify the parameters you wish to monitor. The Channel Status (in multi-channel node) can be toggled to Enabled or Disabled based on your setup requirements. To customize the Sensor Settings, tap the Sensor Settings button. Once all the changes are made, tap **Save** to apply the new settings or **Cancel** to discard them.

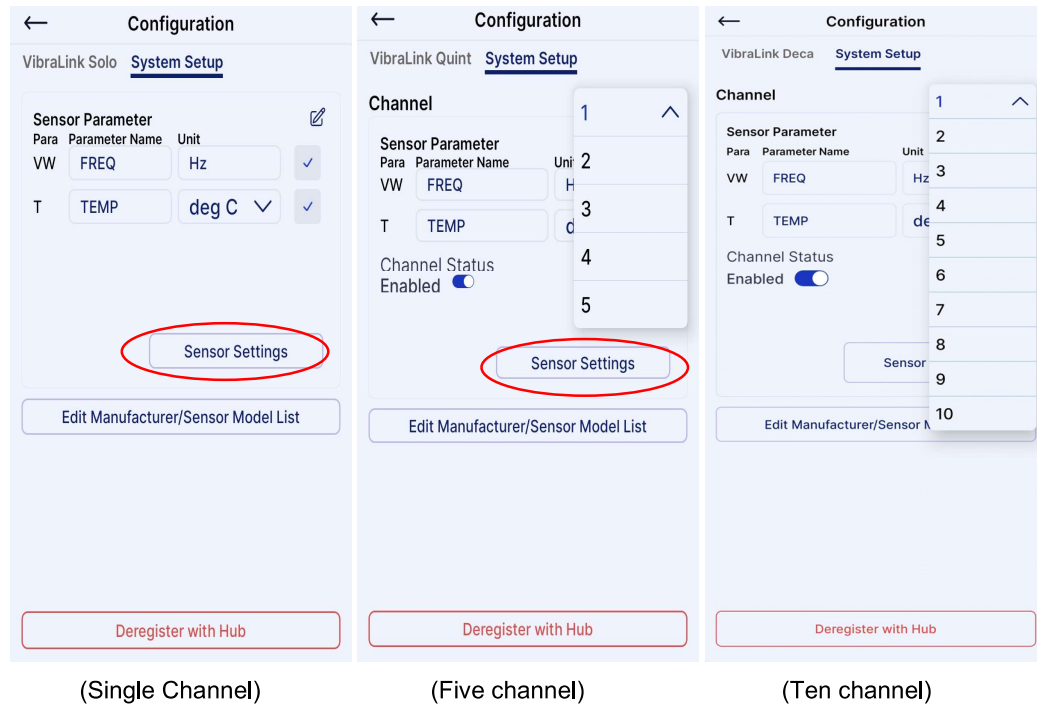


Figure 5-25

- When user tap **Edit Manufacturer/Sensor Model List**, user can add or remove manufacturers and sensor models associated with the **VibraLink Quint** node. To add a new sensor model, select the **Add** option, enter the **Manufacturer** name, and specify the **Sensor Model** details. User can also set the **Thermistor** value (e.g., **3K at 25°C**), and define the **Start Frequency (Hz)**, **End Frequency (Hz)**, and the **Number of Steps**. After filling in the required fields, tap **Add** to save the changes.
- If you wish to remove a manufacturer or sensor model, select the **Remove** option and proceed accordingly.
- Once done, tap **Save** to apply the changes.