



ENCARDIO RITE

ONE STOP MONITORING SOLUTIONS | HYDROLOGY | GEOTECHNICAL | STRUCTURAL | GEODETIC
Over 50 years of excellence through ingenuity

USERS' MANUAL

WIRELESS VW NODE

MODEL EWN-01V/08V



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1 QUICK START GUIDE

Generally, we send devices pre-configured. If your devices are pre-configured by us, please go through the user-friendly procedure to get started with your ER Beam system, which takes only a few minutes to get the process rolling.

- 1 Power on Gateway and turn on its inbuilt Wi-Fi network.
- 2 Connect your Android phone to the ER Beam Wi-Fi network.
- 3 Connect the Android cable to the phone first using the OTG adapter.
- 4 Open the ER Beam Offline Android app.
- 5 Load the project and tap on it to go to the home screen of the app.
- 6 Then connect the Android cable's other end to the Node and click on Setup Device and follow the wizard.
- 7 Repeat step 6 for all your Nodes.
- 8 Then press the Cloud Sync on the app to sync back all the Node settings to the gateway.
- 9 Now the Nodes will send the sensor data at the configured time intervals.
- 10 Optionally, the data can be exported and engineering conversions can be set using the Gateway software.

2 SETTING UP VIBRATING WIRE (VW) NODE

This section provides information on setting up a Vibrating Wire Node to work with the offline ER Beam gateway.

2.1 Installation

The Nodes can be directly affixed to a flat surface using M6 screws. However, for more sophisticated mounting scenarios, we recommend using the node bracket. The node bracket can be used to easily mount the node on flat surfaces, on pipes using U-bolts or cable-ties, or in other complicated settings.

If you are using the bracket, first fix the node device to the bracket using M6 screws and nuts as shown below.

For single channel devices (BEAM-VW-S1), use M4 screws to mount the nodes to flat surfaces or brackets.

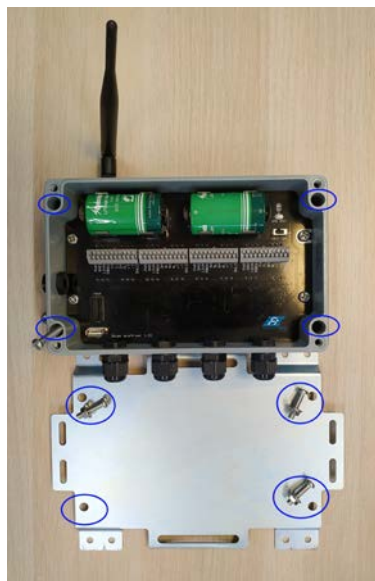


Figure 1: Attachment for nodes

Use four screws and nuts to attach the node to the bracket (Refer to figure 1).

Connect the SMA antenna to the bulkhead. Once the mounting is complete, the node should look as in figure 2.



Figure 2: Node (after installation)

2.2 Node Setup

- 1 Connect the node antenna to the antenna bulkhead.
- 2 Connect the sensor wires to the node while ensuring that the wires are plugged in correctly.

+S: Vibrating wire input of sensor

-S: Vibrating wire input of sensor

+T: Thermistor

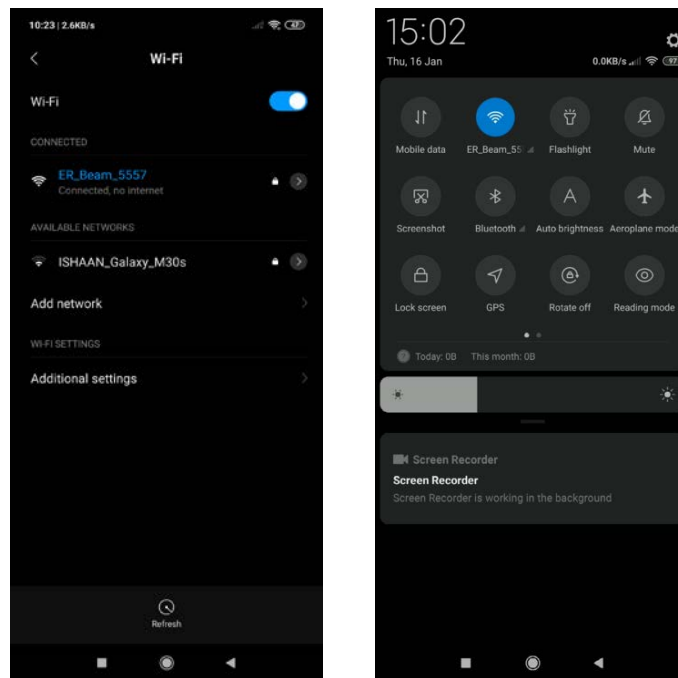
-T: Thermistor

SHLD: Shield wire of sensor

- 3 Switch off the Node and insert the battery while ensuring the correct polarity.

2.3 Configuring via the ER Offline App

- 1 Obtain an Android phone and connect it to the ER_Beam Wi-Fi network. (See the Gateway section to learn about switching on the ER_Beam Wi-Fi network.)



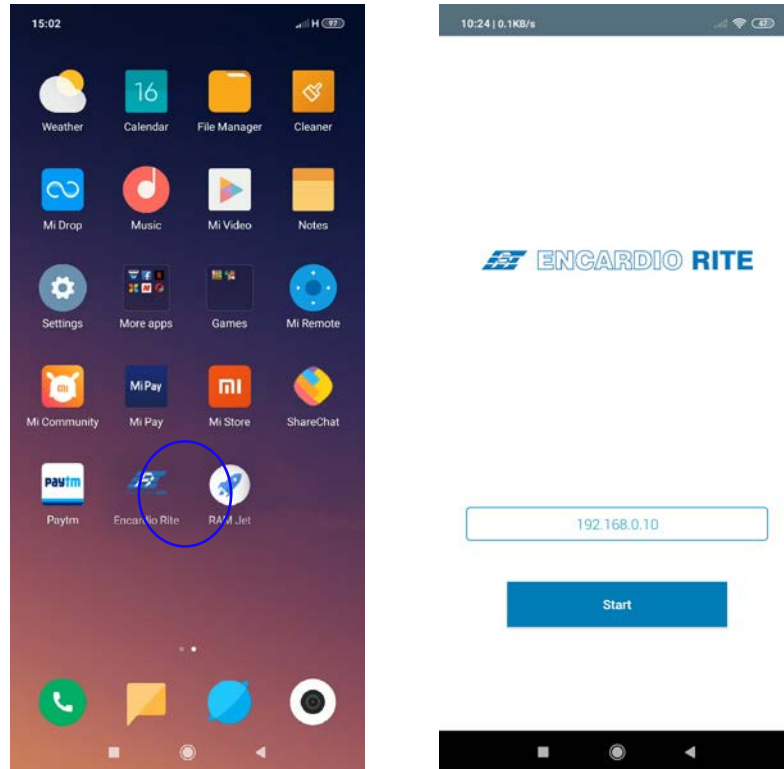
- 2 Connect the Android smartphone to the Node via an OTG adapter.



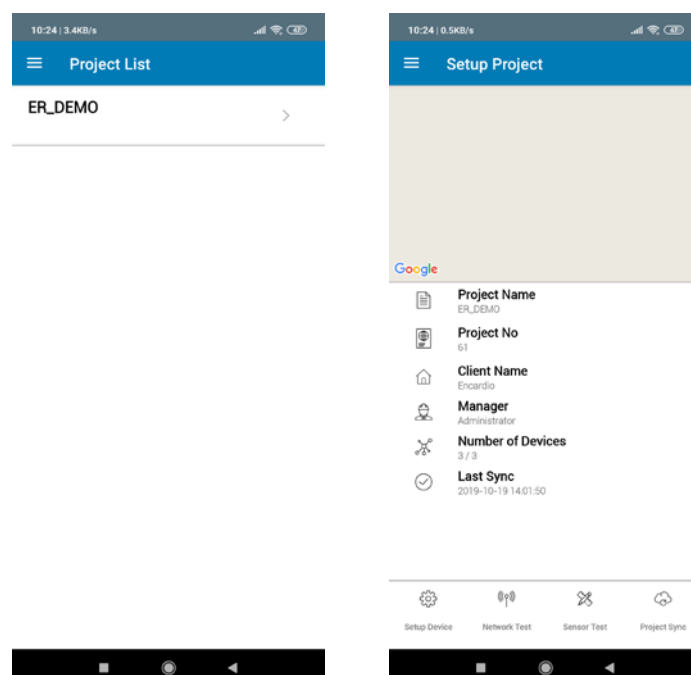
NOTE: Please make sure the Node is switch off before connecting to your Android phone.

- 3 Switch on the Node.
- 4 Open the ER Beam app on the phone.

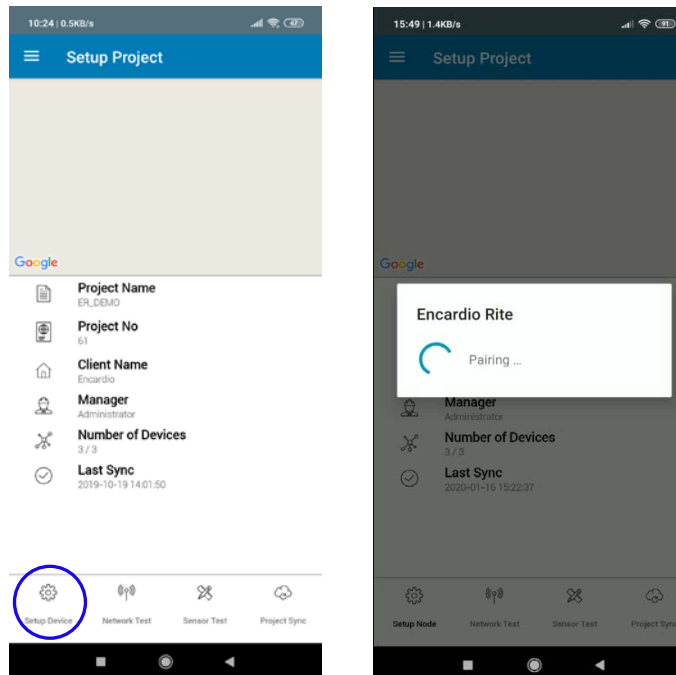
NOTE: You need to add the Node and create the project first before you commission the tilt meter. Please refer to 'Gateway Setup' section in the users' manual for Gateway for details.



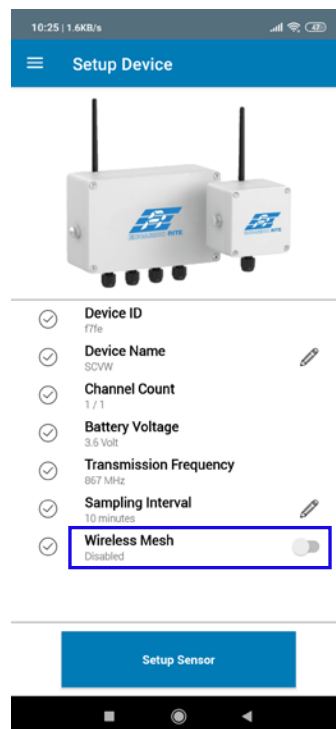
- (i) Search for the project, which you have already created once you open your ER app. Select and click the button to download the project and enter in to the project, where the project details would be mentioned.



- (ii) Click on “Setup Device” on the menu (at the bottom of screen), the app will show connected node information.



- (iii) Optional Step: If Wireless Mesh (Relay) function is to be deployed, click on "Wireless Mesh" toggle button to enable. Once done, click on “Setup Sensor”, you can now configure the sensor settings



- (iv) Sensor setting can be made as follows:

Sensor Code: Desired sensor name.

Sensor Type: Select respective sensor type.

Parameters: Turn on the parameters as connected to the Node.

Mode: Please select the respective Sweep Mode (A or B or C or D), depending on the sensor.

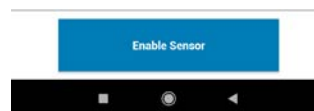
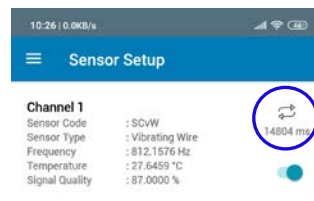
The screenshot shows the 'Sensor Settings' app interface. At the top, there's a status bar with '10:26 | 0.3KB/s' and a blue header with a menu icon and 'Sensor Settings'. Below the header, 'Channel 1' is displayed. The settings are organized into sections: 'Sensor Code' with a text input field containing 'SCVW'; 'Sensor Type' with a dropdown menu showing 'Vibrating Wire' and an information icon; 'Parameters' with two toggle switches for 'Frequency' and 'Temperature', both of which are turned on; and 'Mode' with a list of four options: 'Sweep A - 450 to 1200 Hz', 'Sweep B - 800 to 2000 Hz', 'Sweep C - 1400 to 3500 Hz', and 'Sweep D - 2400 to 6000 Hz'. At the bottom, there is a blue 'Save Sensor' button and an Android navigation bar.

- (v) Click Save Settings. The Node will now read the configured sensor.

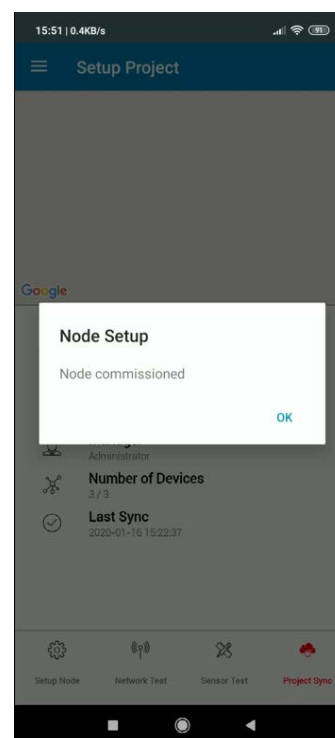
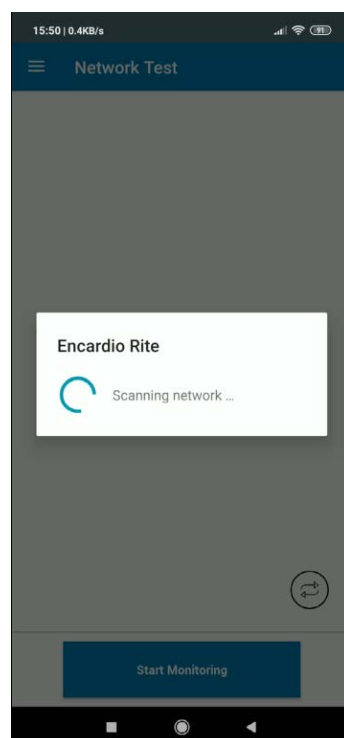
- (vi) On next page, you will see the first reading.

The screenshot shows the 'Sensor Setup' app interface. At the top, there's a status bar with '10:26 | 0.0KB/s' and a blue header with a menu icon and 'Sensor Setup'. Below the header, 'Channel 1' is displayed. The sensor details are listed: 'Sensor Code : SCVW', 'Sensor Type : Vibrating Wire', 'Frequency : 812.1576 Hz', 'Temperature : 27.6459 °C', and 'Signal Quality : 87.0000 %'. To the right of these details, there is a refresh icon and the text '14804 ms'. At the bottom, there is a blue 'Enable Sensor' button and an Android navigation bar.

- (vii) To get another reading, click on the arrow icon. If the reading is ok, enable the sensor by switching on the android icon (colour changing to blue).



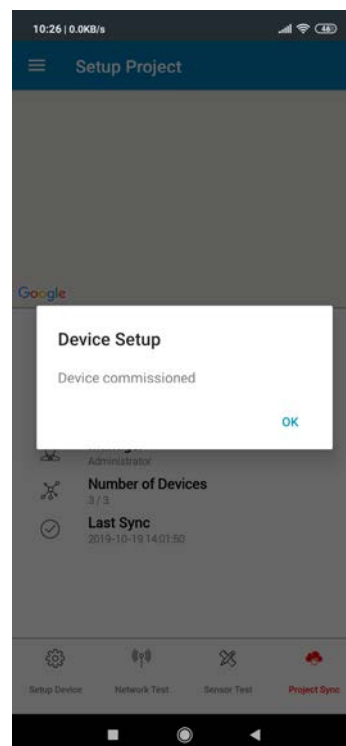
- (viii) Repeat above steps to configure other sensors connected to the Node.
- (ix) Once all sensors are configured, click on “Enable Sensor” button. It will take you to next page “Scanning Network” which will scan the wireless signal strength (RSSI) between the Node and Gateway.



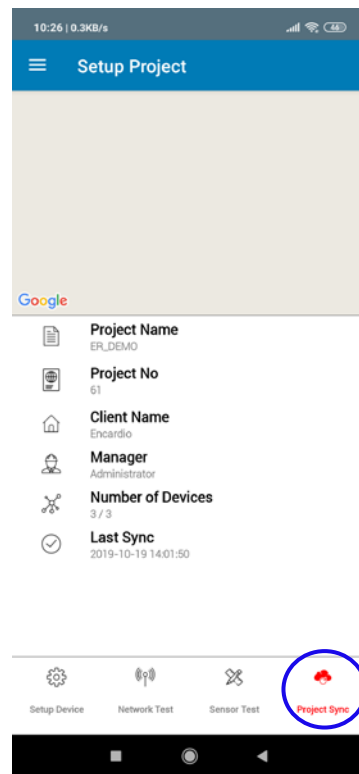
- (x) After receiving the Network Test information, if you need to, you can perform another network test by pressing the button located at the lower right corner.



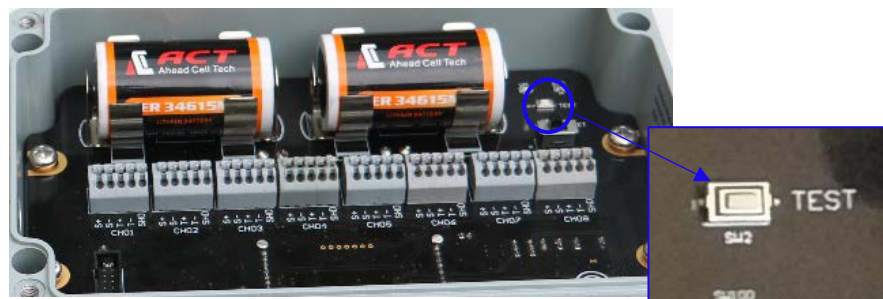
- (xi) Next, click "Start Monitoring" button then the app will prompt, "Device commissioned". Click OK.



- (xii) Press the Project Sync button at lower right area to send all the configuration information back to the gateway.

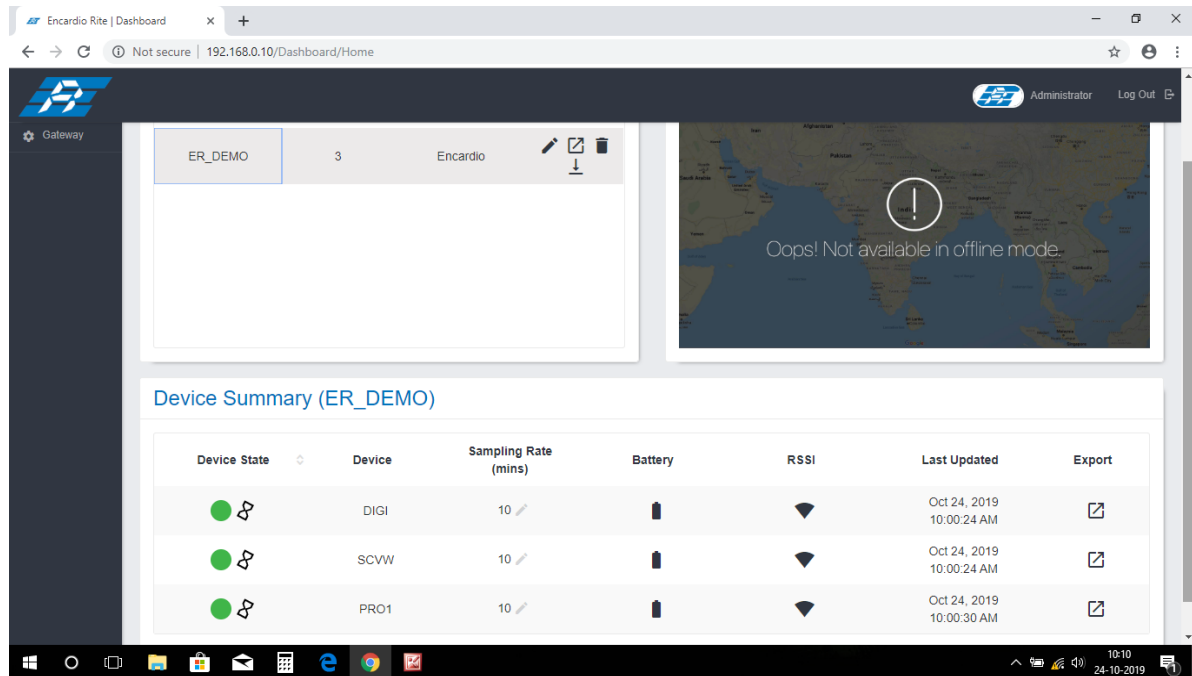


- (xiii) If you would like to get the Node to immediately send a reading to the Gateway, press the “SYS TEST” button on the device’s printed circuit board as shown below.



- (xiv) For commissioning of additional Nodes, repeat the above steps.

- (xv) Now proceed to the Gateway software dashboard on your Laptop and click on your project. Now you will be able to observe your commissioned devices under “Device Summary” Section. For further configuration, refer to the user's manual # WI6002.117 on Gateway.



FCC Caution:

Any Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

FCC RF Radiation Exposure Statement:

1. This Transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.
2. This equipment complies with RF radiation exposure limits set forth for an uncontrolled environment.
3. This equipment should be installed and operated with minimum distance 20cm between the radiator& your body.