

# Setting up your Tiltmeter Node (BEAM-TM)

This article will help you set up your Tiltmeter Node to work with the Ackcio Beam Gateway.

## Before you get started

You will need to prepare the following items before commissioning your nodes.

- A Gateway with its Date and Radio settings configured
- A project created on that Gateway
- The BEAM-TM Node to be commissioned
- Batteries for your Nodes
  - Battery specifications
    - Size: D-type
    - Voltage: 3.6V
    - Capacity: 19AH
    - Type: Li-SOCl<sub>2</sub> (Lithium Thionyl Chloride)
- An Android device
- The Ackcio Nimbus application for Android (Available on the Play store [here](#))
- An OTG adapter and Micro USB cable (provided by Ackcio)

## Installing your Node

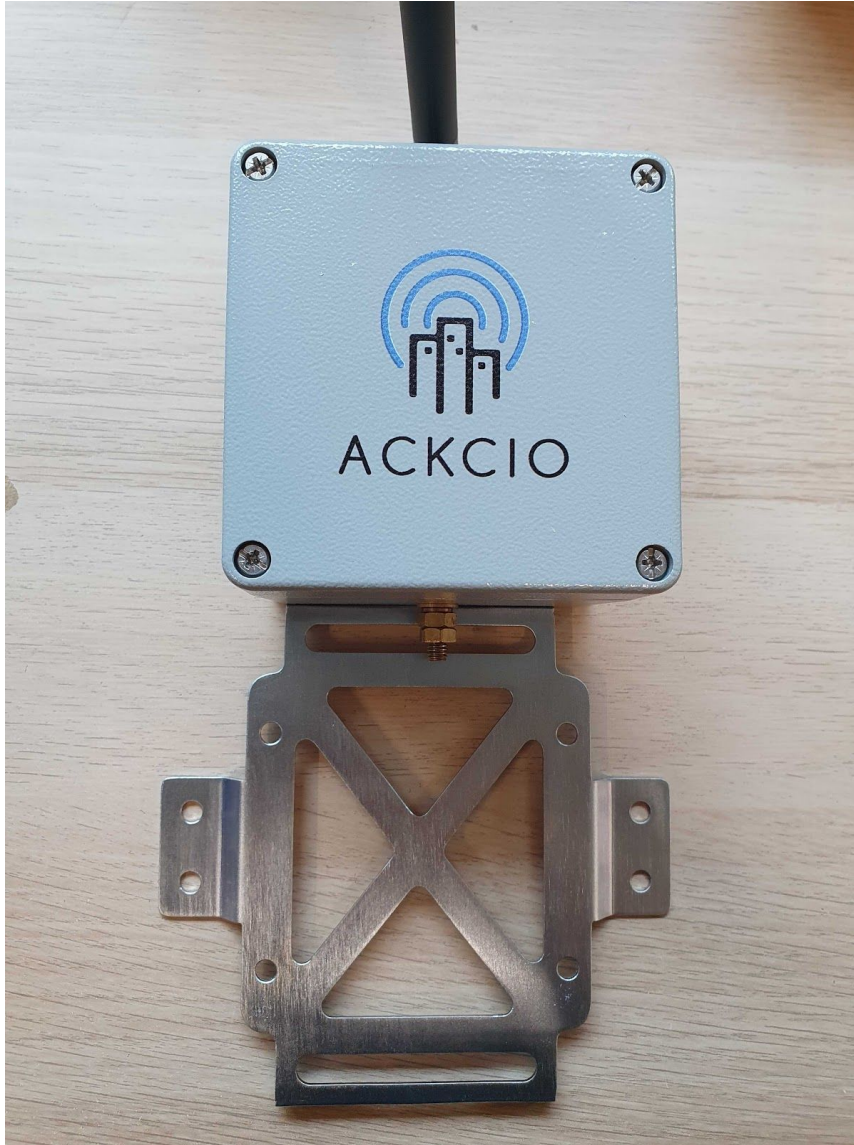
The Nodes can be directly affixed to a flat surface using M4 screws. For more

sophisticated mounting scenarios, we would recommend using the node bracket.

The node bracket

is used to easily mount the node on flat surfaces, pipes and other more complicated settings. Please follow the instructions below to use the node bracket:

1. Fix the node to the bracket using M4 screws and nuts as shown below.



2. Use four screws and nuts to attach the node to the bracket

3. Connect the SMA antenna to the bulkhead. Once the mounting is complete, the node should appear as shown below.



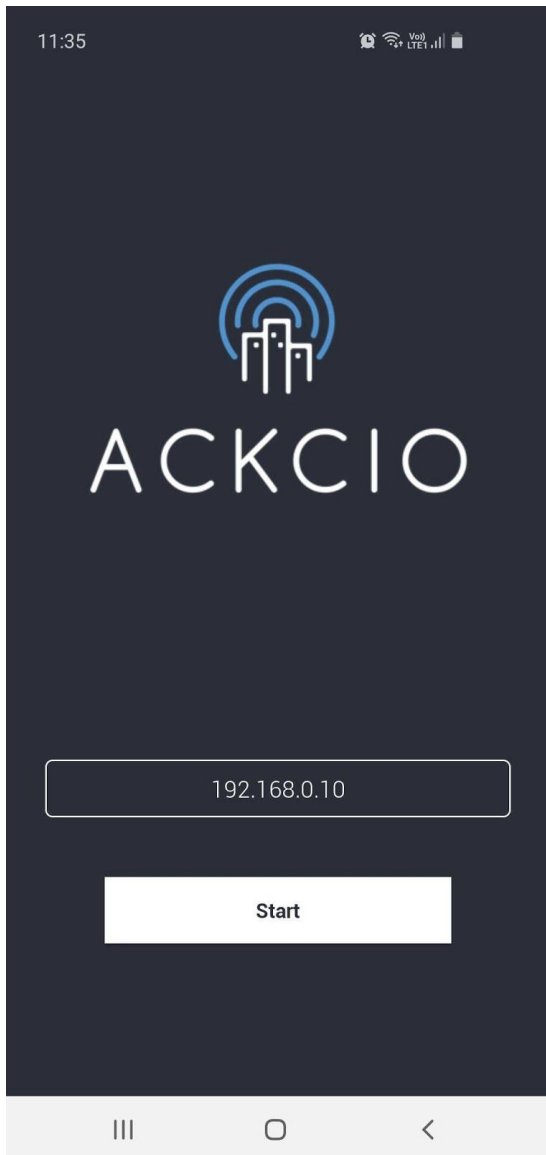


# Connecting your Android device to your Node

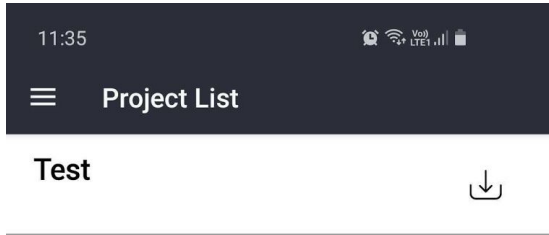
1. Connect the Node to your Android device using the USB cable. Ensure that your OTG adapter is connected to your Android device as per the image below:



2. Open the Ackcio Nimbus application on your Android device and tap the *Start* button. This will bring you to the Project List page.

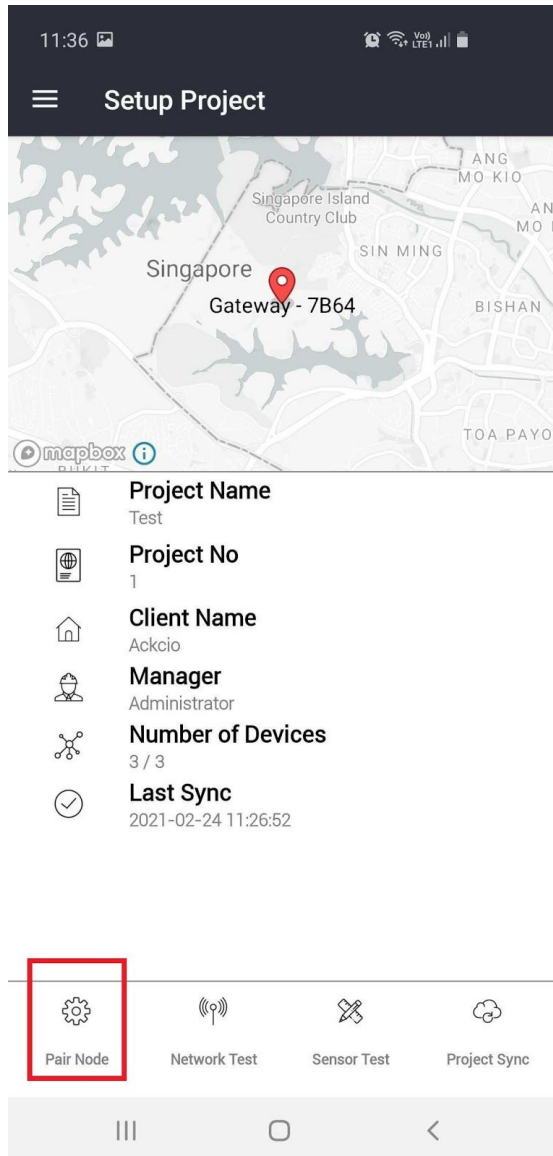


3. Tap on your project to select it.



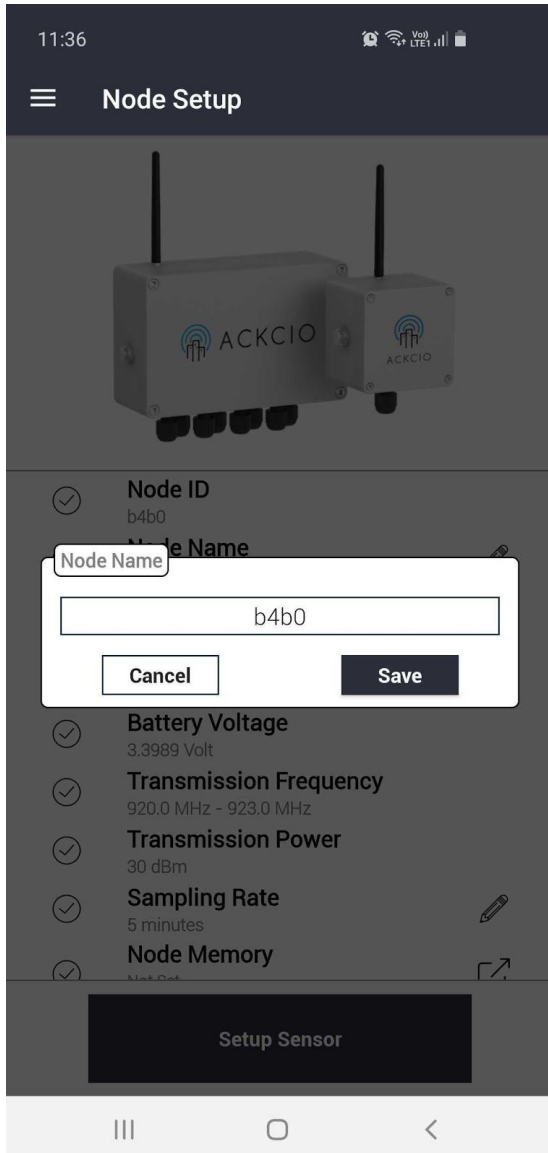
4. Press the *Reset* button on the Node. This will put the node into *Pairing* mode.

5. Within 10 seconds of the previous step, tap the *Pair Node* button on the Ackcio Nimbus application. Upon successful pairing with the node, you will enter the Node Setup page. At this point, the SYS LED on the node should stop blinking and turn solid.



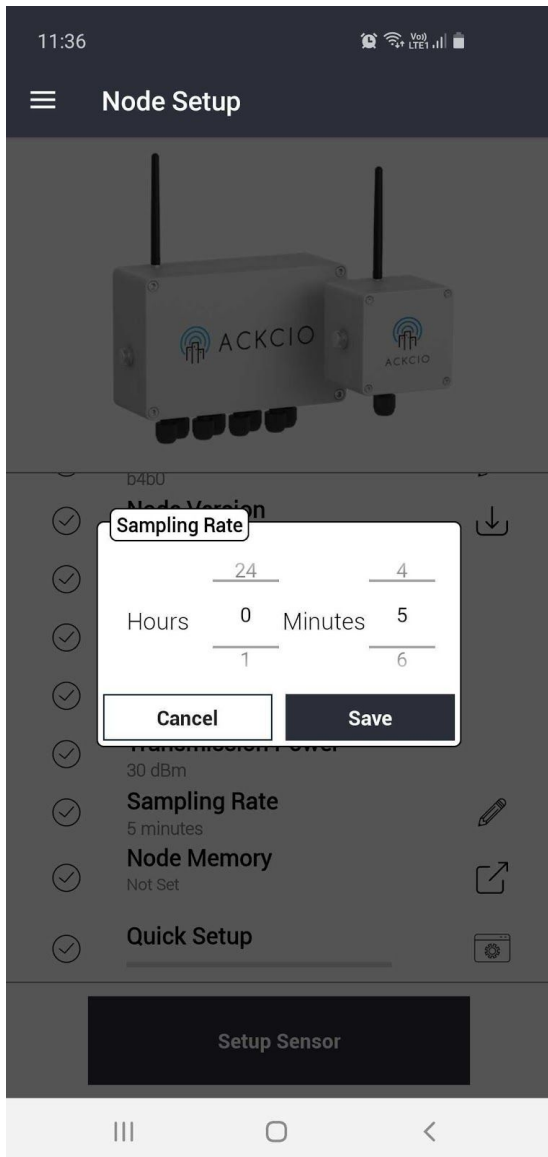
# Setting up your Node

1. On the Node Setup page in the Ackcio Nimbus application, tap on the *Pen* icon next to Node Name. Enter a name for your node and hit *Save*.



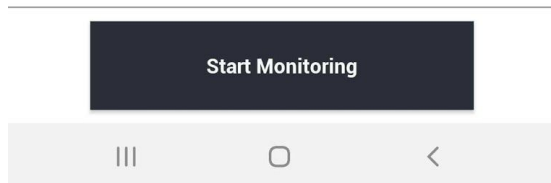
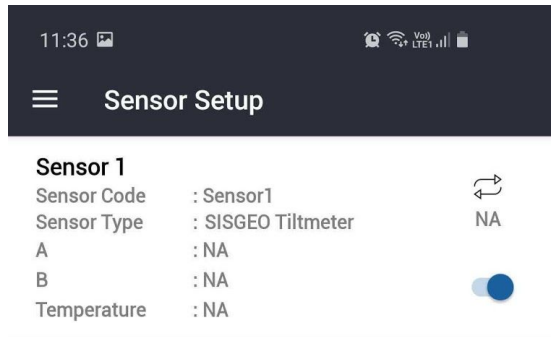


2. Tap on the *Pen* icon next to Sampling Rate, scroll to your desired sampling rate, and hit Save.



3. Tap on the *Setup Sensor* button to enter the Sensor Setup page.

4. On the Sensor Setup page, tap on Sensor 1.



5. Tap the *Save Sensor* button. The Node will then take a reading from its sensor. The SENS LED on the node should start blinking at this stage.

The screenshot shows a mobile application interface for configuring a sensor. At the top, a dark header bar contains the time '11:37', a location icon, and status icons for VoIP, LTE, and battery. Below the header, the title 'Sensor Settings' is displayed with a hamburger menu icon to its left. The main content area is titled 'Sensor 1' and is separated from the rest of the page by a horizontal line. It contains several input fields and toggle switches: 'Sensor Type' is set to 'SISGEO Tiltmeter'; 'Sensor Code' is 'Sensor1'; 'Parameters' includes three toggles for 'A', 'B', and 'Temperature', all of which are turned on; 'Excitation time' is set to 0 minutes and 5 seconds; and 'Excitation Voltage' is set to 5. At the bottom of the settings area, a dark button labeled 'Save Sensor' is visible. The very bottom of the screen shows the standard Android navigation bar with three icons: a square, a circle, and a triangle.

11:37

Sensor Settings

Sensor 1

Sensor Type  
SISGEO Tiltmeter

Sensor Code  
Sensor1

Parameters

A

B

Temperature

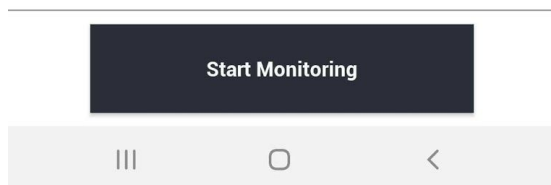
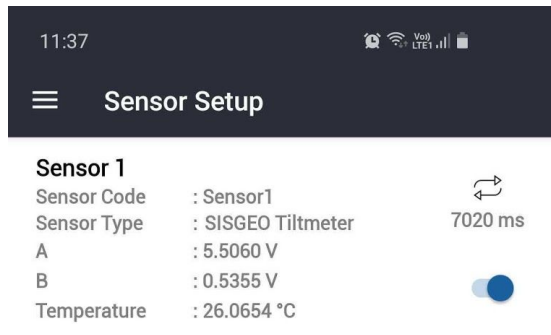
Excitation time

Minutes 0 Seconds 5

Excitation Voltage  
5

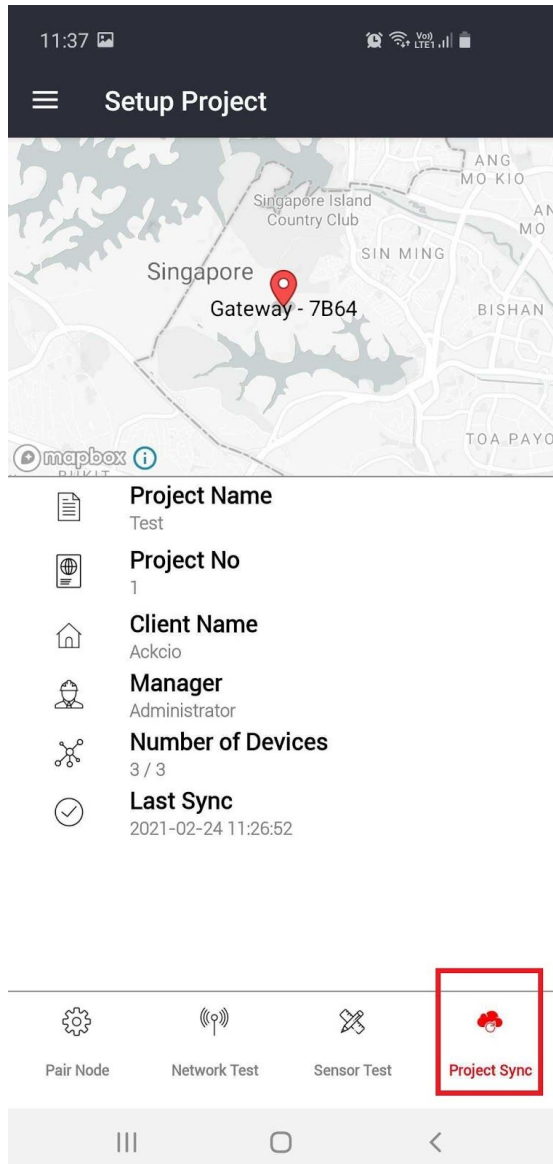
Save Sensor

6. To get another test reading, you can tap the Refresh icon. Otherwise, you can then tap the *Start Monitoring* button to finish commissioning the node. You should see the SYS LED start blinking intermittently again after this step.



# Syncing your Node settings with the Gateway

1. Once you've completed commissioning all your Nodes, connect your Android device to the Gateway's Wi-fi network.
2. Enter the *Setup Project* page on your Ackcio Nimbus application.
3. Tap the *Project Sync* button to store all your Nodes' configuration settings on the Gateway.



4. Your node will then be commissioned and attempt to connect to the Gateway's network, indicated by the SYS LED on the Node blinking.

5. Once the Node has successfully joined the network, you should see the SYS LED stop blinking. The Node will then start taking readings and sending that data to the Gateway at the scheduled sampling intervals.



**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.

**IMPORTANT NOTE:**

Note: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

—Reorient or relocate the receiving antenna.

—Increase the separation between the equipment and receiver.

—Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.

—Consult the dealer or an experienced radio/TV technician for help.

**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.

## ISED Warning

This device complies with Innovation, Science, and Economic Development Canada licence-exempt RSS standard(s). Operation is subject to the following two conditions:

- (1) this device may not cause interference, and
- (2) this device must accept any interference, including interference that may cause undesired operation of the device.

Le présent appareil est conforme aux CNR d'Innovation, Sciences et Développement économique Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes :

- (1) l'appareil ne doit pas produire de brouillage, et
- (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

The device is compliance with RF exposure guidelines, users can obtain Canadian information on RF exposure and compliance. The minimum distance from body to use the device is 20cm.

Le présent appareil est conforme. Après examen de ce matériel aux limites d'intensité de champ RF, les utilisateurs peuvent sur l'exposition aux radiofréquences et la conformité and compliance d'acquérir les informations correspondantes. La distance minimale du corps à utiliser le dispositif est de 20cm.