

ACKCIO BEAM



ACKCIO



Wireless Solutions for
Intelligent Operations

ACKCIO BEAM

Wireless Monitoring Solution



✓ Enhance Safety ✓ Manage Risk ✓ Increase Productivity

ACKCIO BEAM is our revolutionary, wireless industrial data acquisition platform that allows for reliable, remote monitoring of industrial sensors, providing intelligent data to users in mission-critical industries to help them make faster, better-informed decisions.

Our solution combines 3 main components

Nodes

Plug-and-play style setup and user-friendly system.
Compatible with leading geotechnical, structural, and environmental sensors.
Battery life of up to 5 years.

Wireless Mesh Network

Innovative patented Ackcio Mesh wireless data collection protocol provides seamless connectivity in both above ground and underground environments.
Low-power, long-range wireless radios that provide up to 10 km of range for each hop of the mesh network.
Reliability at its core – Ackcio Mesh technology is self-healing and incorporates retransmission of data to ensure the highest reliability.

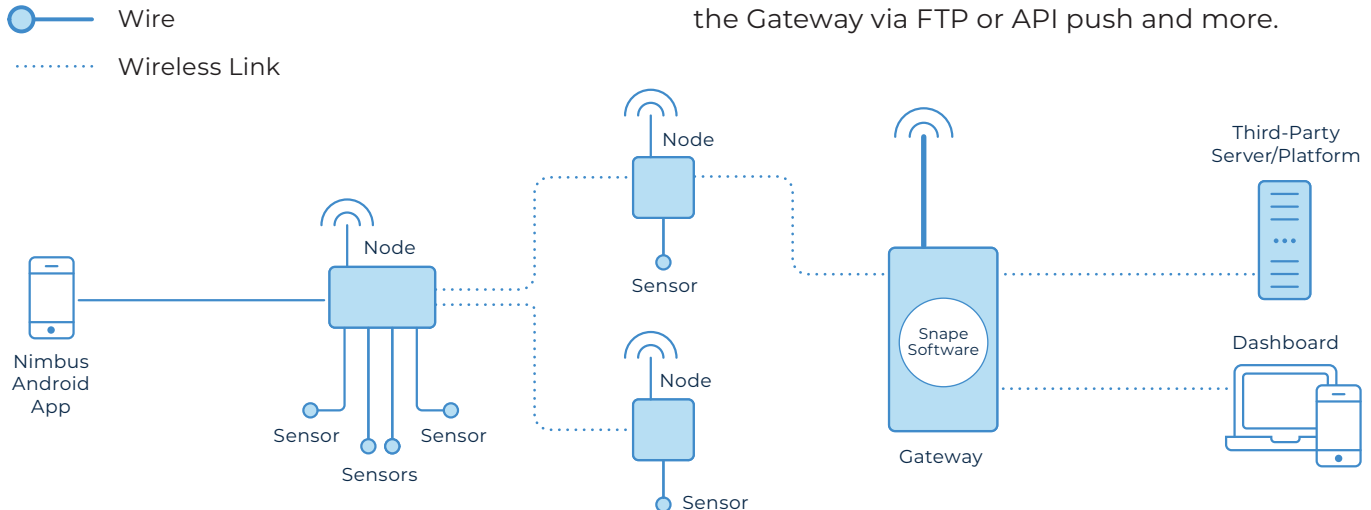
Software

Secure and private on-Gateway data and device management software.
Out-of-the-box compatibility with popular third-party data analytics software platforms.
Easy-to-use smartphone application for device commissioning and diagnostics.

ACKCIO BEAM

How it works

Ackcio Nodes take periodic readings from sensors and transmit them via the Ackcio Mesh to the Ackcio Gateway, where they are then uploaded to any third-party server/software platform. Ackcio Snape software allows you to configure the Gateway and Nodes, and also set up other key operations such as uploading sensor data out of the Gateway via FTP or API push and more.



ACKCIO MESH

Reliable Wireless Sensor Data Collection

Ackcio Nodes use long-range wireless radios to communicate with the Ackcio Gateway as well as with each other. The Ackcio Mesh network automatically mitigates common wireless problems such as signal interference and blockage, thereby allowing Nodes to reliably transmit their data to the Gateway every time.

Radio bands

Sub-1GHz band
(863-870MHz, 902-928MHz)

Mesh hops

Up to 12

Nodes per Gateway

Up to 50

Line-of-sight

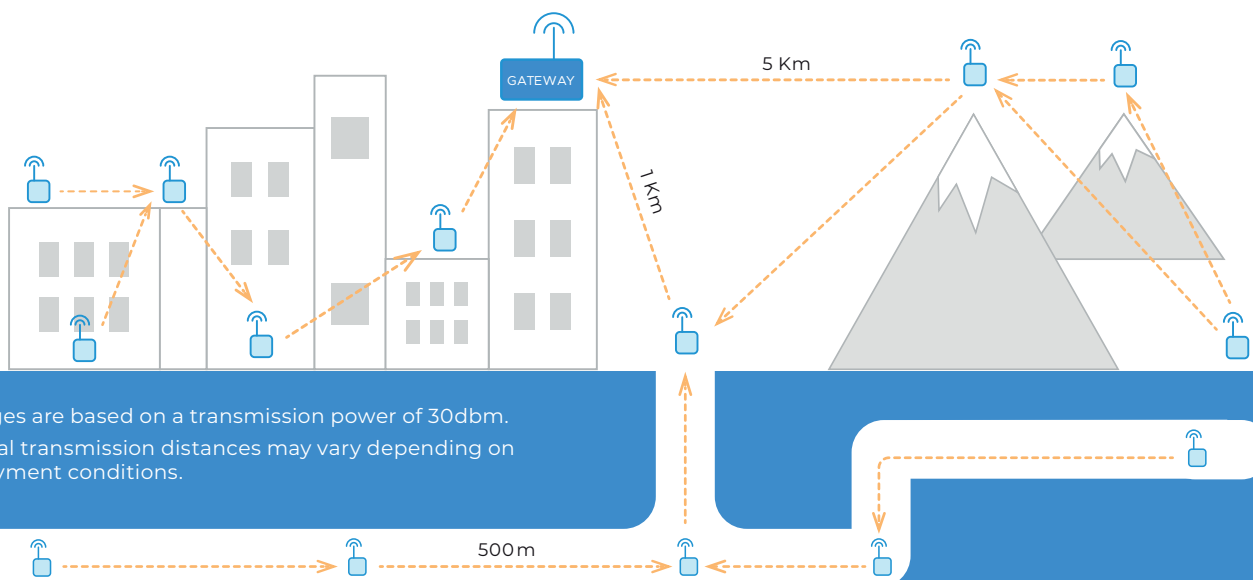
Up to 5 Km per hop*

Urban

Up to 1 Km per hop*

Below ground

Up to 500 m per hop*



* Ranges are based on a transmission power of 30dbm.

* Actual transmission distances may vary depending on deployment conditions.

ACKCIO DEVICES



Ackcio Analogue Nodes

BEAM-AN-S1: Supports 1 sensor (2 analogue channels and 1 thermistor channel)

BEAM-AN-S4: Supports 4 sensors (8 analogue channels and 4 thermistor channels)



Ackcio Vibrating Wire Nodes

BEAM-VW-S1: Supports 1 sensor (1 vibrating wire channel, 1 pulse counter, and 1 thermistor channel)

BEAM-VW-S8: Supports 8 sensors (8 vibrating wire channels and 8 thermistor channels)



Ackcio Digital Node

BEAM-DG: Supports digital sensors using RS232, RS485 or SDI-12 communication protocols.

Supports digital sensors like in-place inclinometers, digital tiltmeters, borehole extensometers, water level sensors, ShapeArrays etc.

Supported Digital Sensor Brands



& more

ACKCIO DEVICES



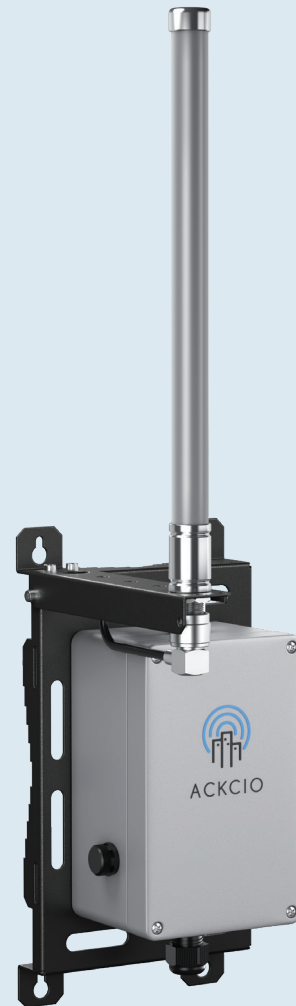
Ackcio Tiltmeter Node

BEAM-TM: Wireless Tiltmeter Node. BEAM-TM uses MEMS bi-axial tilt sensor modules built, installed, and calibrated by Sisgeo Asia Pacific, thus providing highly accurate and reliable tilt readings.



Ackcio Repeater Node

BEAM-RN: Repeater Node that helps to expand network coverage.



Ackcio Gateway

BEAM-GW: Beam Gateway with Snape, Ackcio's on-Gateway data and device management software.

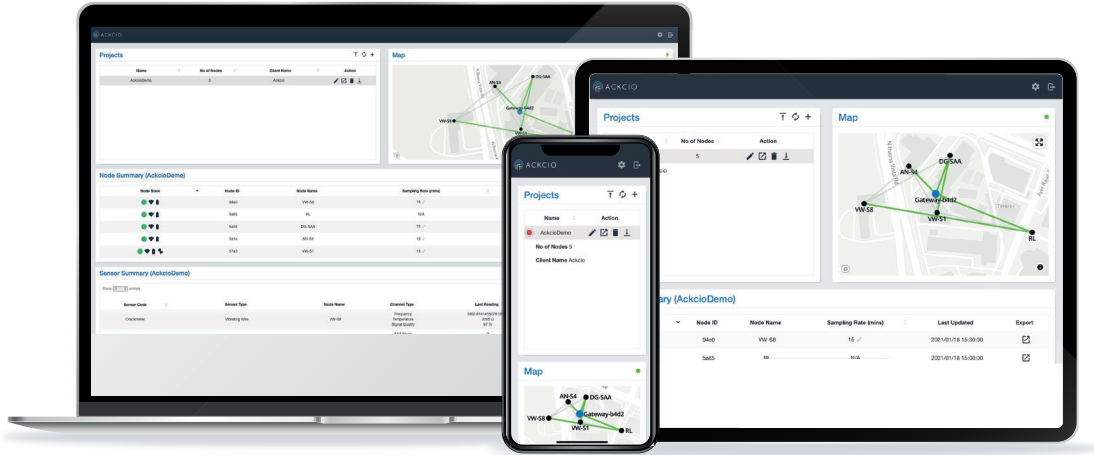


Ackcio Battery Pack

BEAM-BP: External Battery Pack with Battery Adaptor

ACKCIO SOFTWARE

Snape / Nimbus



On-Gateway Snape Software

Ackcio's Snape software, which runs on the Ackcio Gateway, helps you configure your deployments and manage sensor data collected by our monitoring system.

Ackcio Snape software provides all stakeholders with real-time access to every data point collected from your projects, thereby allowing you to make informed and collective decisions that reduce delays and increase productivity and safety.

Key Features

- Simple-to-use and modern interface for data and device management.
- Quick and secure out-of-the-box compatibility with popular data analytics software platforms.
- Remote, real-time access over public and private IP using popular DDNS and remote.it services.
- Over-the-air update and troubleshooting for the Snape software.
- Intuitive Ackcio Mesh network troubleshooting with support for online/offline maps.
- Runs completely on the edge providing for secure and private deployments.

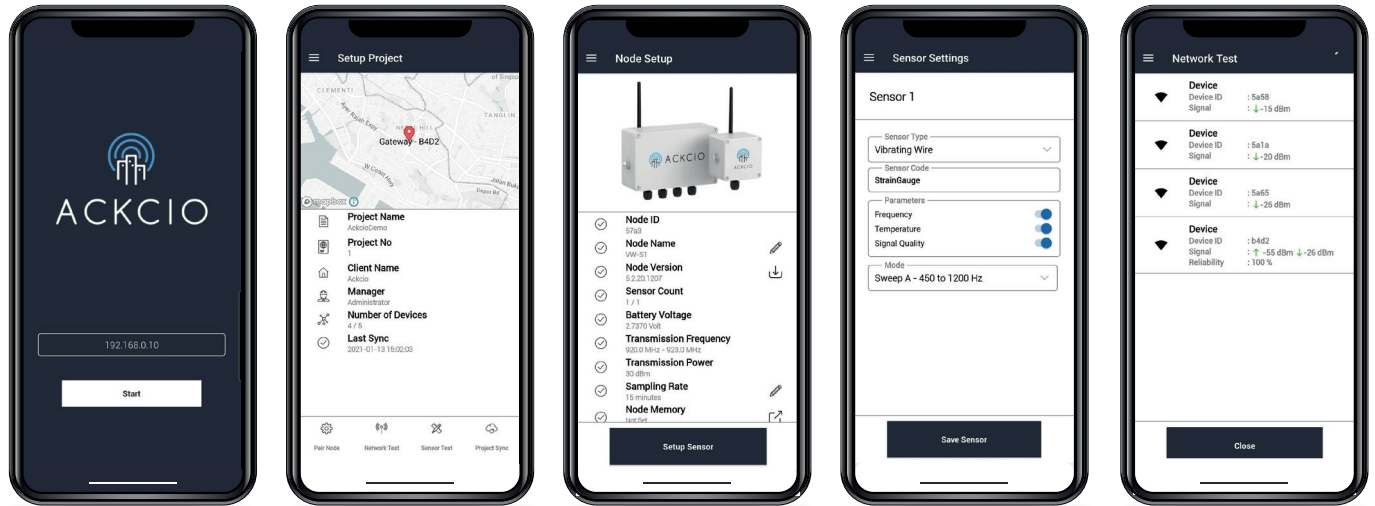
Supported Data Analytics Software Platforms



& more

ACKCIO SOFTWARE

Snake / Nimbus



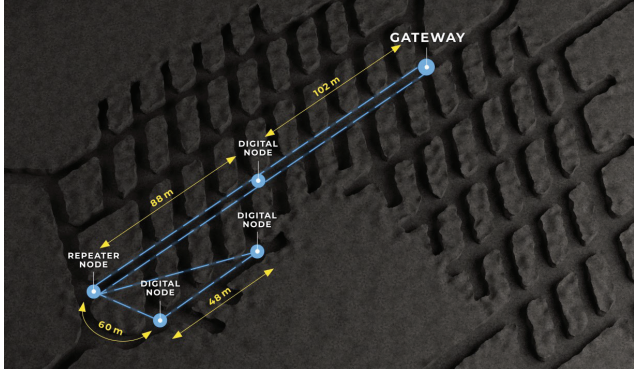
Nimbus Android App

All of our Nodes can be set up at the deployment site with an easy-to-use Nimbus Android application that comes free with the system.

Key Features

- Simple and intuitive device commissioning process with Quick Setup feature.
- Easy to use device and network diagnostics functionality.
- In-app reference guides for sensor wiring.
- Noise scanning feature to identify background interference.
- Easy firmware update functionality for Nodes.
- Download Nodes' backup data with a few clicks.

ACKCIO DEPLOYMENT HIGHLIGHTS



Underground Mine | Australia

Monitoring rock movement at 527m below ground, in a complex mine with tunnels and many corners, ensuring reliability with multiple wireless links.

Devices: BEAM-DG, BEAM-RN, BEAM-GW



Feitsui Dam | Taiwan

Slope monitoring covering a vast area utilizing multi-hop mesh technology, with the Gateway to the furthest sensor 4.1km away.

Devices: BEAM-DG, BEAM-RN, BEAM-GW



Railway Embankment | UK

Automating railway cutting monitoring by connecting Measurand SAAV Extend and GeO flushable piezometers with Ackcio mesh Nodes.

Devices: BEAM-DG, BEAM-VW-S1, BEAM-TM



MRT Tunnelling | Singapore

Infrastructure tunnel monitoring at four stories underground, approximately 400m from the Gateway at the surface, using mesh for deeper, longer and more reliable data transmission.

Devices: BEAM-AN-S1, BEAM-RN, BEAM-GW

ABOUT ACKCIO

Ackcio builds reliable wireless data acquisition systems for industrial monitoring applications. The company automates monitoring processes and provides remote, intelligent data to enable increased safety and efficient risk management in mission-critical industries, including construction, infrastructure, mining, and rail.

Ackcio's flagship solution, Ackcio Beam, is an industrial data acquisition platform that uses a patented long-range wireless mesh network to monitor sensors accurately and reliably in both above ground and underground environments. Ackcio is headquartered in Singapore and supports clients across the world. In 2021, the company was included in Forbes Asia's inaugural '100 to Watch', a list comprising small companies and startups on the rise across the Asia Pacific.

For more information, visit www.ackcio.com or follow us on social media.



ACKCIO



+65 6802 7392



75 Ayer Rajah Crescent, #03-01/02,
Singapore 139953



[linkedin.com/company/ackcio](https://www.linkedin.com/company/ackcio)



sales@ackcio.com



www.ackcio.com



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