

# 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 5 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.

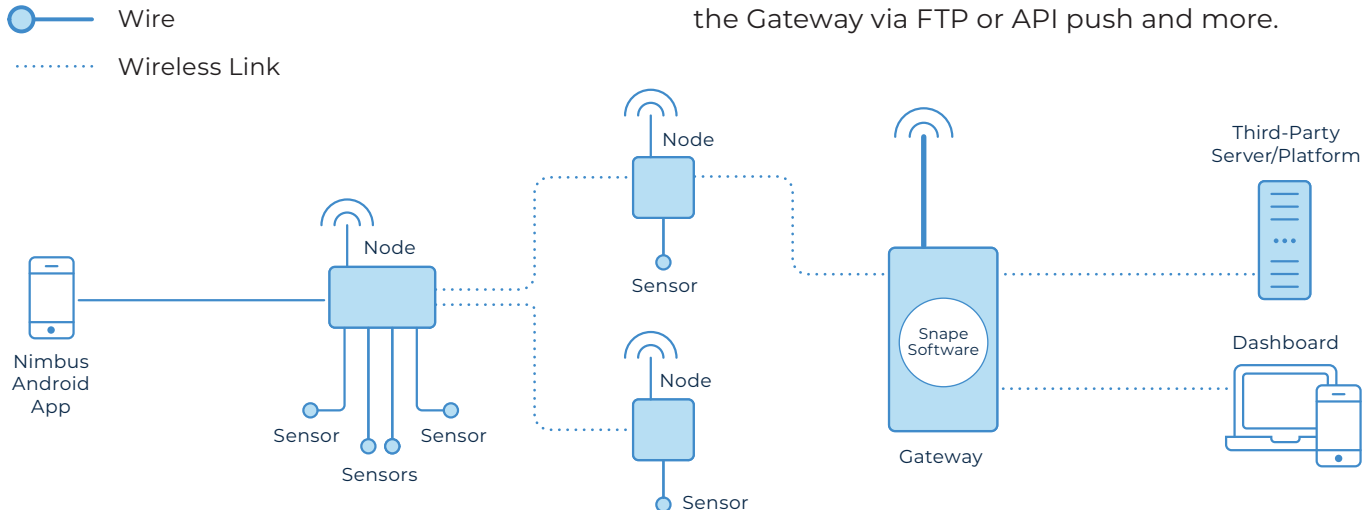
### Software

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

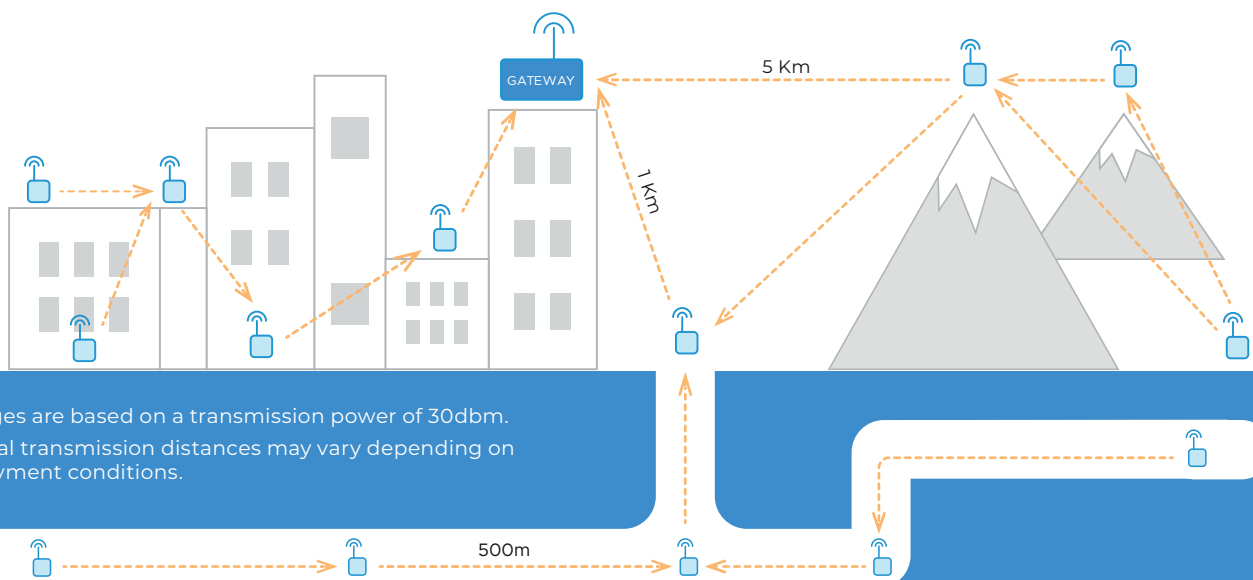
Up to 5 Km per hop\*

### Urban

Up to 1 Km per hop\*

### Below ground

Up to 500m 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.

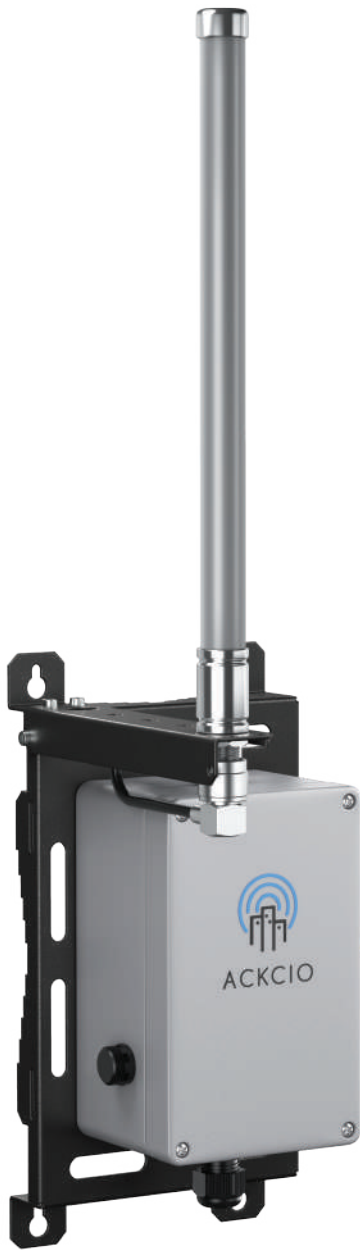
### Supported Digital Sensor Brands



& more

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# ACKCIO DEVICES



## Ackcio Gateway

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



## 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 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.

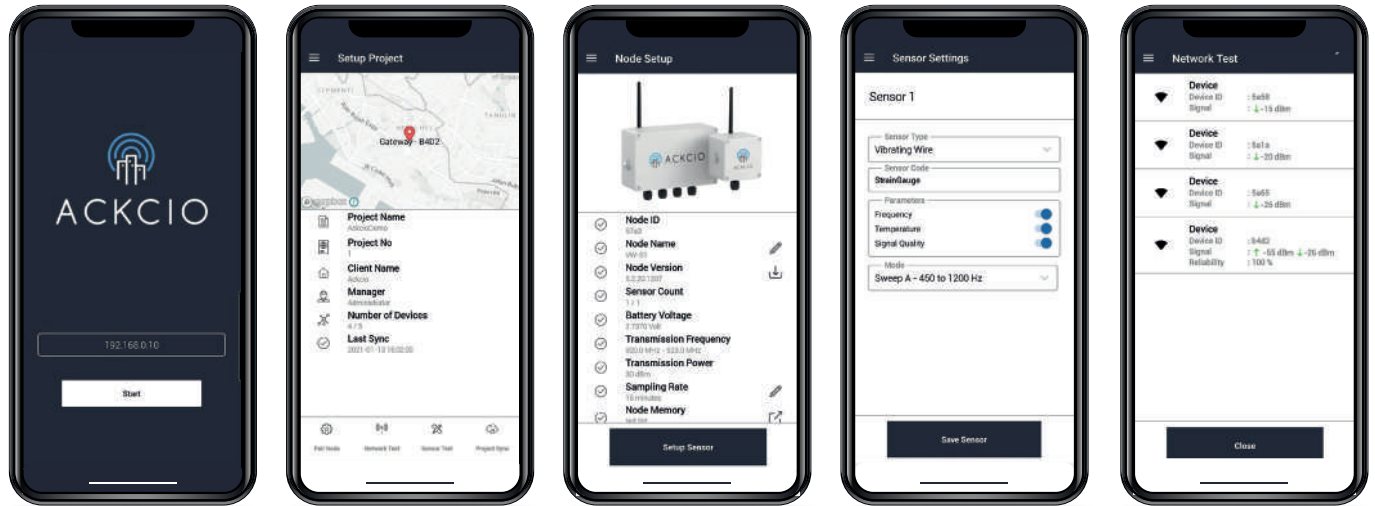
### Supported Data Analytics Software Platforms



& 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



## Neste Singapore Refinery

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### Load monitoring on struts

Industry: Construction

Location: Singapore

Devices: BEAM-VW-S8, BEAM-GW

Monitored sensors: Strain gauges



## Xinzhuang Depot by Taipei Metro

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### Structural monitoring of a tunnel

Industry: Infrastructure

Location: Taipei, Taiwan

Devices: BEAM-AN-S4, BEAM-RN, BEAM-GW

Monitored sensors: MEMS tiltmeters, LVDT sensors



## UK Rail Monitoring

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### Railway cutting monitoring

Industry: Rail

Location: United Kingdom

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

Monitored sensors: SAAV Extend, GeO flushable piezometers, Tilt



## Kalgoorlie Gold Processing Facility

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### Porewater pressure monitoring

Industry: Mining

Location: Kalgoorlie, Australia

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

Monitored sensors: Piezometers, In-place inclinometers



# 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](http://www.ackcio.com) or follow us on social media.




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