



Adventum Tech service: GroundControl



Sensors: GroundControl

Analytics: Liveload.app

Price is subject to project-specific parameters

The offer includes:

1. GroundControl sensor system
2. Wireless monitoring of structural inclinations and settlement issues
3. Real-time notification system for exceeded limits
4. Access to Liveload.App system for vibration analytics
5. Adventum Tech technical support
6. On-site delivery and sensor installation
7. Travelling costs
8. Base station and Data plan
9. Monthly Liveload.app subscription fee



Product Overview

GroundControl is an advanced real-time monitoring system developed by Adventum Tech to measure structural inclinations and detect settlement issues in various construction and operational environments. The system enables stakeholders to identify potential structural imperfections early, preventing damage, ensuring safety, and optimizing maintenance efforts. With GroundControl, construction and asset management teams can make data-driven decisions to maintain structural integrity and longevity.



Why Monitor Structural Inclinations?

Monitoring structural inclinations in real time is vital for:

- **Early Detection of Structural Issues:** Inclination monitoring can reveal signs of settlement, uneven load distribution, or structural deformation.
- **Preventing Structural Failures:** Unaddressed inclinations can lead to excessive stress on certain areas, potentially resulting in cracks, warping, or collapse.
- **Prolonging Asset Lifespan:** Timely corrections based on inclination data reduce the likelihood of irreparable damage and extend the operational lifespan of structures.
- **Liability Protection:** Accurate, documented inclination data can safeguard against claims related to structural instability or failure.
- **Environmental Impact Management:** Helps ensure nearby structures, soil, and the surrounding environment remain stable and undisturbed during construction.



Key Features

- **Continuous Monitoring:** Tracks changes in structural inclinations in real time.
- **Early Warnings:** Sends immediate alerts when inclination values exceed safe thresholds, allowing for swift intervention.
- **Comprehensive Analytics:** Processes and visualizes inclination data through liveload.app for better understanding and reporting.
- **Customizable Thresholds:** Tailored settings for different structural types and project requirements.
- **Scalable Deployment:** Applicable across multiple project scales and types, from temporary structures to long-term infrastructure projects.

Technical Specifications

Parameter Details:

- Measurement Range: $\pm 90^\circ$ (full-scale measurement for inclinations)
- Precision: $\pm 0.1^\circ$
- Axis: 3 - axial
- Signal Intensity: Customer specific
- Protocol: LoRa
- Data Transmission: LoRa or 4G, Wireless, LTE
- Frequency: 868 MHz

Physical Specifications:

- Dimensions: 125 × 115 × 170 mm
- Weight: 950 g
- Battery Type: Li-ion, rechargeable
- Battery Life: 1-6 month
- Mounting Options: Project specific

Available Accessories:

- PV Panel for renewable energy support
- Extended Battery for longer deployment cycles
- Calibrated Angle Display for on-site visual feedback



Benefits of GroundControl

Technical Benefits

- Real-Time Inclination Monitoring: Provides instant feedback on structural behavior under varying loads.
- Improved Risk Management: Detects potential issues like settlement or lateral movement before they escalate.
- Enhanced Safety Standards: Ensures structures remain within designed stability parameters, protecting workers and assets.
- Better Predictive Maintenance: Reduces reactive maintenance costs by addressing issues early.

Commercial Benefits

- Reduced Repair Costs: Identifies structural problems before they require extensive repairs or reinforcements.
- Minimized Downtime: Prevents project delays by addressing inclination issues proactively.
- Enhanced Reputation: Demonstrates commitment to quality and safety, attracting investors and clients.
- Insurance Advantages: Reduced risk leads to better compliance with insurance requirements and potential premium reductions.

Environmental Benefits

- Stabilized Surroundings: Prevents unintended disturbances to adjacent structures and landscapes.
- Sustainability: Prolonged structural lifespan reduces the need for resource intensive reconstruction.
- Community Relations: Minimizes the impact of construction activities on neighboring areas.



Benefits of GroundControl

Applications

GroundControl is versatile and applicable across various sectors, including:

- Construction Projects: Monitors inclinations of retaining walls, temporary supports, and formwork systems.
- Bridges and Viaducts: Detects settlement or deformation that may compromise load-bearing capacity.
- Tunnels: Ensures tunnel linings and surrounding soil remain stable during and after construction.
- Marine Ports: Tracks inclination changes in dock structures to ensure safety during heavy cargo handling.
- Railways: Ensures embankments, supports, and track beds remain stable under operational stress.
- Airports: Monitors terminal and runway support structures for long-term safety and stability

How Structural Inclinations Affect Integrity

Unaddressed structural inclinations can lead to:

- Foundation Settlement: Excessive tilting can indicate uneven subsidence, jeopardizing the entire structure.
- Cracking and Deformation: Stress concentration in inclined areas may cause visible cracking or warping.
- Load Redistribution Issues: Inclinations can shift loads to unintended areas, potentially causing failure.
- Operational Risks: For dynamic structures (e.g., bridges, rail tracks), inclination can impair performance or safety.
- Cascading Failures: Minor inclinations, if unmonitored, can snowball into significant structural challenges.



Software Integration

GroundControl data is seamlessly integrated into liveload.app, offering:

- Real-time data visualization and analysis
- Secure, cloud-based storage
- Project-specific dashboards
- Exportable reports for documentation
- Compliance monitoring



Contact Adventum Tech

For more details, custom configurations, or pilot projects:

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