ADVENTUM TECH

Product Data sheet: Tilt GroundControl

Product code GCT-01-01

OVERDESIGN

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Product Overview

GroundControl Tilt is a wireless, 3-axial inclination monitoring sensor developed by Adventum Tech for real-time control of geotechnical and structural movements. The sensor is designed to detect tilt, rotation changes in retaining structures, railway infrastructure, bridges, and geotechnical walls during construction and operation. By providing continuous, inclination and rotation change data, GroundControl Tilt enables early detection of instability, proactive risk mitigation, and long-term asset protection.

GroundControl Tilt transforms critical structures into continuously monitored assets, supporting safer construction, regulatory compliance, and data-driven asset management.

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Key Features

- Continuous real-time tilt and inclination monitoring
- Early warning alerts for exceeded threshold values
- High-precision 2-axial inclination measurement simultaneously
- Fully wireless operation with flexible deployment
- Suitable for temporary and permanent installations
- Scalable across projects of any size

Measured parameters

- Structural inclination and rotation
- Settlement-related angular movement
- Multi-directional tilt (3-axis)

Construction Applications

- Retaining walls and diaphragm walls
- Secant pile and sheet pile walls
- Temporary excavation support systems
- Railway earthworks and retaining structures
- Bridges and Tunnels
- Urban construction sites
- Tunnelling and blasting operations
- Piling, compaction, and demolition works
- Railway and road construction near sensitive structures

Operational applications

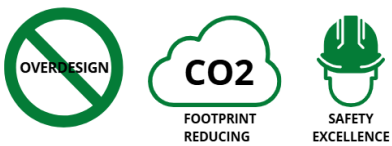
- Railway infrastructure and embankments
- Bridges and viaduct substructures
- Permanent geotechnical walls
- Monitoring of long-term settlement and deformation

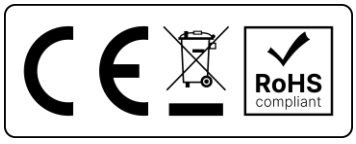
Software & Data Integration

- Real-time inclination visualization
- Automated alerts and notifications
- Secure cloud-based data storage
- Project-specific dashboards
- Exportable reports for compliance and documentation
- API and third-party software integration

Safety, Risk & Asset Value

- Reduced risk of damage claims and disputes
- Improved construction safety and control
- Enhanced compliance with vibration regulations
- Better stakeholder and community relations
- Strong competitive advantage in tenders





Technical Specification

Sensor type: Tilt - GroundControl Sensor Specification	Parameters details	Values
Type	MEMS sensor	3-axis Inclinometer + Accelerometer
Internal memory	256 kB	GW 32GB
Power/Battery	Li-$SOCl_2$	Size-D, 19 Ah
Tilt - GroundControl Technical Specification		
Parameters details		
Accuracy	An angle degree (°)	±0.02°
Resolution		0.0001°
Repeatability		0.01°
Internal temp. resolution		0.1°C
Range		±2.4g / ±90°
Physical Specification		
Parameters details		
Dimensions	mm	100 x 100 x 50
Weight/Mass	g	250g
Protection	IP	IP 66
Material		PVC
Operating Temperature Range	Celsius, °	MEMS: -40° +125°
	Celsius, °	Battery: -40° + 85°
Radio Specification		
Parameters details		
Range (estimation for urban and rural environment)		
Urban		0 - 1km
Sub-urban		1 - 3 km
Open space		3 - 5km
Fequency		868 MHz / 915 MHz
Data Transmission		Lora / LTE 5G
Configuration		Star Topology (Point to Point)
Battery Life (*estimation for static monitoring)		
Parameters details		
1 min		2 years
15 min		5 years
1h		10 years
6h		15 years
Dynamic mode battery lifetime depends on Project requirements and sensitivity		

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