ADVENTUM TECH

Product Datasheet: SlabControl 5.0

Product code SC50-01-01

OVERDESIGN

CO2 FOOTPRINT REDUCING

SAFETY EXCELLENCE

RoHS compliant

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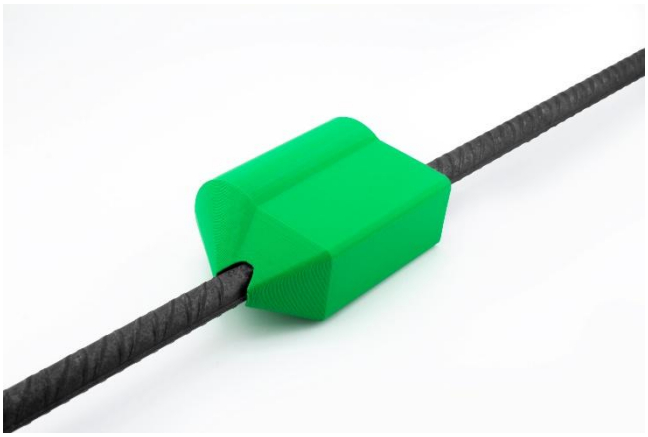
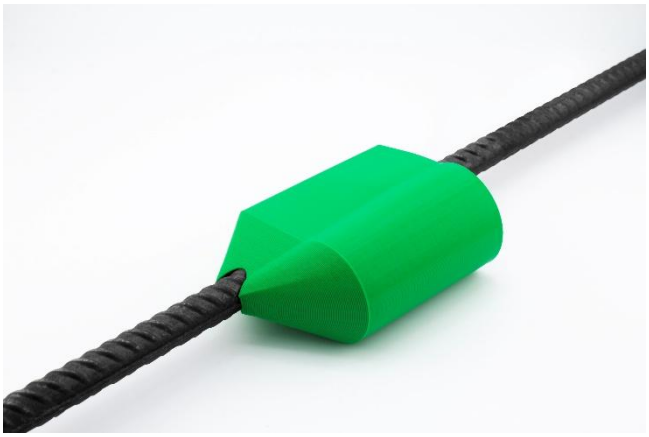
Product Overview

SlabControl 5.0 is a multifunctional, fully wireless structural monitoring sensor developed by Adventum Tech to transform concrete structures into self-reporting assets from day one. Embedded directly into the structure during construction, SlabControl 5.0 continuously monitors key structural parameters throughout construction and operation, delivering long-term value across the full asset lifecycle. By combining loadbearing, micro-deformation, tilt, vibration, temperature, and concrete maturity measurements in a single device, SlabControl 5.0 enables engineers, owners, and operators to understand real structural behaviour rather than rely solely on design assumptions.

SlabControl 5.0 allows structures to transition seamlessly from construction-phase monitoring into operational structural health monitoring, supporting safer construction, optimized handover, and data-driven asset management.





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Key Features

- Multifunctional embedded sensor (one device, multiple parameters)
- Self-reporting structure from the first concrete pour
- Continuous monitoring from construction through operation
- ASTM C1074-compliant concrete maturity and strength prediction
- Wireless data transmission
- Long-term monitoring with battery life up to several years (configuration dependent)

Measured parameters

- Loadbearing behaviour
- Micro-deformation (strain)
- Structural inclination (tilt)
- Vibration and dynamic response
- Concrete temperature
- Concrete maturity and strength development

Construction Applications

- Concrete slabs and decks
- Bridge decks and piers
- Tunnels and underground structures
- Foundations and raft slabs
- Ports, quays, and heavy civil structures

Operational Applications

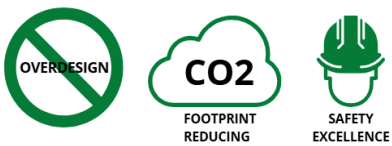
- Real-time structural behaviour monitoring
- Traffic-induced structural monitoring
- Climate-induced structural monitoring

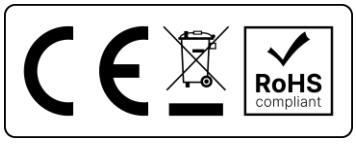
Software & Data Integration

- Real-time structural behaviour visualisation
- Automated analytics and alerts
- Secure cloud-based data storage
- Project-specific dashboards
- Exportable reports for QA, compliance, and asset documentation
- API and third-party software integration

Sustainability & ESG

- Optimised material use and reduced CO_2 footprint
- Reduced overdesign through real performance data
- Improved safety and risk management
- Extended asset lifespan through early issue detection





Technical Specification

Sensor type: SlabControl 5.0 Sensor Specification		
Parameters details		
Type	MEMS sensor, Strain gauge	Strain Gauge, 2-axis Inclinometer + Accelerometer
Internal memory	256 kB	GW 32GB
Power/Battery	Li-$SOCl_2$	Size-D, 19 Ah
LoadBearing - SlabControl Technical Specification		
Parameters details		
Accuracy	kN	±0.1kN
Resolution		0.01 kN
Range		-30 to +30 kN
Tilt - SlabControl Specification		
Parameters details		
Accuracy	An angle degree (°)	±0.2°
Resolution		0.1°
Range		±2.4g / ±90°
Physical Specification		
Parameters details		
Dimensions	Variable: 250mm - 1000 mm rebar length	
Weight/Mass	1250g	
Protection	PU Potted. Waterproof	
Material	Steel Rebar + PU + PETG	
Operating Temperature Range	MEMS: -40° +125°	
	Battery: -40° + 85°	
Radio Specification		
Parameters details		
Range (estimation for urban and rural environment)		
Urban	km	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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