ADVENTUM TECH

Adventum Tech Monitoring Systems: Digital Concrete

System code DC01-01

OVERDESIGN

CO2 FOOTPRINT REDUCING

SAFETY EXCELLENCE

CE RoHS compliant

System Overview

Digital Concrete by Adventum Tech is a comprehensive real-time monitoring solution designed to digitalise concrete structures throughout their entire lifecycle — from formwork and casting to post-deformwork operation. The system integrates multiple sensor technologies into a unified monitoring framework, enabling engineers, contractors, and asset owners to understand actual concrete behaviour rather than rely solely on theoretical assumptions.

Digital Concrete transforms buildings and infrastructure into self-reporting structures, improving safety, construction quality, and long-term asset performance.

1 **Gateway**

2 **TempSense 3+**

3 **LiveLoad**

4 **SlabControl 5.0**

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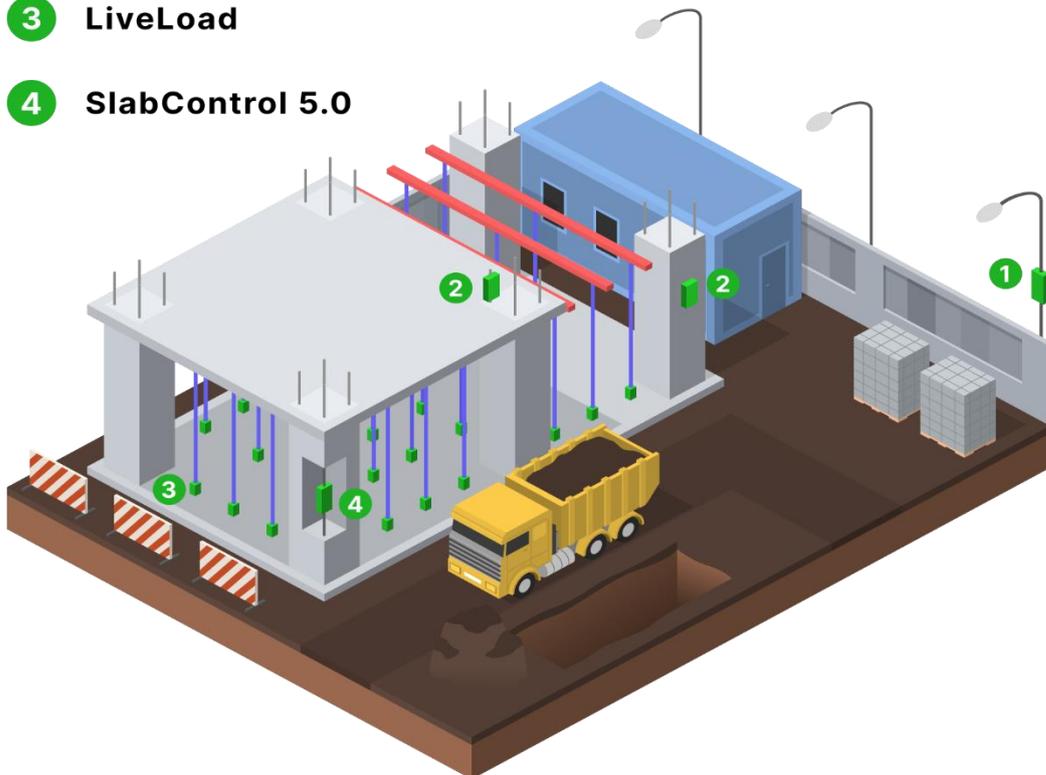
System Architecture

Digital Concrete is composed of the following integrated components:

- **LiveLoad** – real-time monitoring of temporary shoring system and support reactions
- **TempSense –** precise monitoring of concrete temperature, maturity, and strength development during curing
- **SlabControl 5.0** – embedded monitoring for newly built bridges, measuring loadbearing behaviour, deformation, vibration, temperature, concrete maturity, and strength development
- **Gateway** – LoRa communication protocol gateway enabling secure wireless data transmission

Key Features

- End-to-end digitalisation of concrete works
- Continuous monitoring from casting through operation
- Verification of real loadbearing behaviour
- Early warning alerts for unsafe conditions
- Fully wireless, scalable system
- Seamless transition from construction monitoring to asset monitoring

Measured Parameters

- Concrete loadbearing and support pressures
- Concrete temperature and maturity
- Concrete strength development
- Structural deformation and micro-strain
- Vibration and dynamic response

Typical Applications

Construction Phase Applications:
- Formwork, falsework, and shoring systems
- In-situ concrete slabs and walls
- Reinforced slabs and decks
- Foundations and raft slabs
- Piles and deep foundation elements

Operational applications

- Structural performance verification while constructing, performing concrete works after deformwork
- Long-term monitoring of slabs and loadbearing elements
- Data-driven maintenance and asset management

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Software & Data Integration

Digital Concrete is fully integrated with LiveLoad.app, providing:

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

Also, data integration with 3rd party Software

Safety, Risk & Asset Value

- Reduced risk of structural failure during casting
- Optimised construction sequencing and formwork removal
- Improved quality assurance and documentation
- Reduced overdesign and material waste
- Extended lifespan of concrete structures