TECHNICAL DATA SHEET

Converge Helix®

PRODUCT DESCRIPTION

Converge Helix® is a reusable, long-range wireless monitoring system engineered for complex and large-scale construction projects. Powered by LoRaWAN technology, the Helix® provides realtime concrete strength and temperature monitoring with coverage up to 1.5 miles (2.4 km).

Integrated with the Concrete DNA® platform, Helix® delivers instant insights, AI-powered curing predictions, and compliance-ready reports. Its rugged, IP67-rated design ensures reliability in harsh construction environments, while its reusability offers significant value across multiple pours.

FEATURES & BENEFITS

- **Reusable Hardware** – Cost-effective, long-term monitoring solution.
- **Extended Range** – LoRaWAN connectivity up to 2.4 km (1.5 miles).
- **Accurate Monitoring** – Collects temperature and strength data with high precision.
- **Multi-Point Sensing** – Supports single and multiprobe thermal tails for comprehensive monitoring.
- **Real-Time Data Access** – View curing data instantly via the ConcreteDNA® app and web platform.
- **AI Predictions** – Accelerate strike decisions by forecasting curing milestones.
- **Durable & Reliable** – IP67-rated design for outdoor and heavy-duty site conditions

APPLICATIONS

- **Bridges & Viaducts** – Long-distance, distributed monitoring across spans.
- **Dams, Reservoirs & Mass Pours** – Thermal differential tracking in thick or large pours.
- **Tunnels & Underground Works** – Reliable data in confined and hard-to-access environments.
- **Transport Infrastructure** – Airports, highways, and rail projects requiring wide-area coverage.
- **Industrial & Energy Projects** – Power stations, refineries, and renewable energy structures.
- **Precast Facilities** – Provides consistent QA/QC records across repeated use.
- **Sustainable Construction** – Validates curing in low-carbon cement mixes.

TECHNICAL SPECIFICATIONS

STORAGE & HANDLING

- Store Helix Nodes and Hubs in a dry, cool place, avoiding prolonged exposure to sunlight.
- Do not expose to mechanical shocks or submersion outside IP67 conditions.
- Shelf life of devices is 24 months when stored in recommended conditions.

SAFETY

- Devices are non-hazardous and safe for site use.
- Always follow site-specific electrical safety and lifting protocols.
- Dispose responsibly at certified electronic waste facilities.

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Converge Signal Long Range®

TECHNICAL SPECIFICATIONS

TYPICAL PHYSICAL PROPERTIES

Specification	Details
Connectivity	LoRaWAN + Bluetooth® 5.1
Wireless Range	Up to 2.4 km (1.5 miles) in open environments
Measurement Frequency	Every 20 minutes
Operational Temperature	-40 °C to +85 °C
Temperature Accuracy	±0.2 °C
Enclosure Material	ASA (shell), TPU (button)
IP Rating	IP67 (dust-tight and waterproof)
Device Dimensions	133 × 66 × 47 mm
Weight	206 g
Battery Type	3.6 V Lithium Thionyl Chloride (non-replaceable)
Battery Capacity	8500 mAh, 30.6 Wh
Active Battery Life	Approx. 6–12 months depending on usage
Shelf Life	2 years
Internal Memory	Stores 10+ years of data (depending on logging
Compatible Tails	Single-Probe Thermal Tails (3 m), Multi-Probe Thermal Tails (2 m); lengths up to 10 m available
Integration	ConcreteDNA® Mobile & Web App
Certifications	FCC, CE, UKCA, RCM (Australia/NZ)

PACKAGING & AVAILABILITY

Code	Description
134721	Helix Hub (Wi-Fi & Cellular) – Hardware
133845	Helix Hub – Software Annually
136906	Helix Node with 24 Months Software
135849	Single-Probe Thermal Tail (SPTT) – 1m Long
135850	Single-Probe Thermal Tail (SPTT) – 3m Long
135851	Single-Probe Thermal Tail (SPTT) – 10m Long
135852	Single-Probe Thermal Tail (SPTT) – 15m Long
135853	Multi-Probe Thermal Tail (2 Probe) (MPTT) – 2m Long
135854	Multi-Probe Thermal Tail (2 Probe) (MPTT2) – 4m Long
135855	Multi-Probe Thermal Tail (2 Probe) (MPTT2) – 4.5m Long
135856	Multi-Probe Thermal Tail (2 Probe) (MPTT2) – 6m Long
135857	Multi-Probe Thermal Tail (2 Probe) (MPTT2) – 10m Long
135858	Multi-Probe Thermal Tail (3 Probe) (MPTT2) – 8m Long
135859	Multi-Probe Thermal Tail (3 Probe) (MPTT2) – 5m Long
135860	Multi-Probe Thermal Tail (3 Probe) (MPTT2) – 12m Long
132115	Calibration Analysis & Report for 1 Mix (required for strength monitoring, not for thermal only)

COMPLIANCE

Converge Helix® meets international compliance standards, including:

- **Australia & New Zealand:** RCM certified

INSTALLATION GUIDELINES

1. **Helix Node™**
   - Place node on rebar or a secure mounting point.
   - Register the device in the ConcreteDNA® app.
   - Connect thermal tails to measure concrete temperature at multiple depths.
2. **Thermal Tails**
   - Single or multi-probe options available.
   - Place probes at key measurement points within the pour.
3. **Helix Hub™**
   - Mount the hub with line of sight to nodes for optimal coverage.
   - Collects and transmits data to ConcreteDNA®.
4. **ConcreteDNA® Platform**
   - Access real-time curing data, AI predictions, compliance reports, and digital records.

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