Wireless Compost Temperature Monitoring

Aysix-Intempco multi-point probe assembly with LoRa Cube connectivity



Reliable temperature information across the compost pile helps operators verify process conditions, identify cold or overheated zones, and document performance without repeated manual readings.

Wireless Compost Temperature Monitoring

Aysix-Intempco CompostNet is an advanced wireless temperature monitoring system designed specifically for compost piles. Utilizing the LoRa (Long Range) low-power wireless protocol, CompostNet ensures reliable, long-distance communication and seamless data transmission, even in challenging environments.

A complete field-to-data solution

The Aysix-Intempco CompostNet system combines a rugged, corrosion-resistant multi-point temperature probe with low-power LoRa wireless communication. Readings are transmitted to the compact LoRa Cube gateway and embedded server, where operators can review current and historical temperature data.

Measure at depth

Monitor as many as six temperature points along one probe assembly.

Reduce field wiring

LoRa provides long-range, low-power wireless communication across the site.

Support compliance

Store time-stamped readings and generate reports from the application database.

Designed for municipal, commercial and industrial composting operations

PROBE ASSEMBLY

Multi Point Measurement Inside the Pile

Rugged construction for demanding outdoor service



Probe assembly

One probe can provide up to six temperature readings, (depending on probe length), allowing operators to see the thermal profile—not only a single point. Shown with optional solar panel. Also available optional integrated display showing up to 6 temperatures.

Engineering features

- **Up to six sensing points.** Select the number and location of measurement points to suit the pile geometry and monitoring objective.
- **Solar powered.** Optional integral solar panel charging system to keep batteries perpetually charged.
- **Outdoor-ready housing.** The transmitter enclosure is rated Type 4X and IP66 for protection from corrosion, dust and water ingress.
- **Rugged probe construction.** The probe is designed for repeated insertion into active compost and resistance to corrosive outdoor conditions.
- **Flexible power choices.** Configurations are available with replaceable batteries, USB-rechargeable lithium-ion batteries, or solar assistance.
- **Useful diagnostics.** Available data includes time stamp, battery status, enclosure temperature and received signal strength indication.
- **Optional Integrated display.** Displays up to six temperatures

How information moves

Probe sensors → **LoRa radio** → **LoRa Cube gateway server** → **Operator application**

Typical operating uses

Aerated static piles • Municipal organics • Biosolids composting • Agricultural and commercial composting

Configuration note. Probe length, sensor spacing, reporting interval, power package and mounting details should be confirmed for the specific site and handling method.

Real-Time Temperature and Data Monitoring: The system continuously tracks temperature within the compost pile, providing real-time information at varying depths to ensure optimal conditions for efficient decomposition. A single compost probe can provide up to six temperature readings along the length of the probe. Additional information and functionality include battery status, internal enclosure temperature, timestamp, Received Signal Strength Indicator (RSSI), and remote (wireless) probe shutdown.

Durable and Weatherproof Sensors: Built to Aysix-Intempco ‘s exacting standards, the temperature probes are corrosion-resistant, rugged and weatherproof, ensuring reliable performance in harsh, outdoor environments. The instrument housing provides protection against corrosion, dust particles, and water (Type 4X, IP66).

Energy Efficient: Designed for low power consumption, the CompostNet probes run on state-of-the-art rechargeable lithium-ion batteries. The rechargeable batteries can be charged via any USB-A port in a matter of hours while the solar panel option allows the probes to operate maintenance-free indefinitely with just a few hours of direct sunlight per week.

LoRa Cube Wireless Gateway and Server

Simplified deployment, local data management and scalable sensor connectivity



LoRa Cube

The all-in-one LoRa Cube combines a LoRa gateway with an embedded server. One Power over Ethernet connection supplies power and network connectivity, reducing field hardware and wiring.

LoRa Cube capabilities

Wireless network	Long-Range Communication: Leveraging LoRa technology, CompostNet provides robust connectivity over extended distances, making it ideal for large composting operations or remote locations where other wireless protocols might falter.
Installation	Single category 5e Ethernet connection using Power over Ethernet
Data functions	Embedded processing, storage and access to current and historical measurements
User access	Desktop application for querying the server and reviewing sensor information
Integration	MODBUS options support connection to PLC or SCADA systems where required

Plan the system around the site

Cancoppas personnel can review the compost layout, number of monitored piles, desired measurement depths, update frequency, gateway location, network availability and reporting requirements. A site survey or LoRa range test is recommended where terrain, buildings, equipment or long distances may affect radio performance

Information to provide for a quotation

1	2	3
Pile geometry Maximum pile height, width and length	**Measurement plan** Number of piles, probe points and sampling interval	**Site connectivity** Distances, obstructions, Ethernet and PoE availability

LoRa DataView Application Software

Clear operating information from every connected CompostNet probe

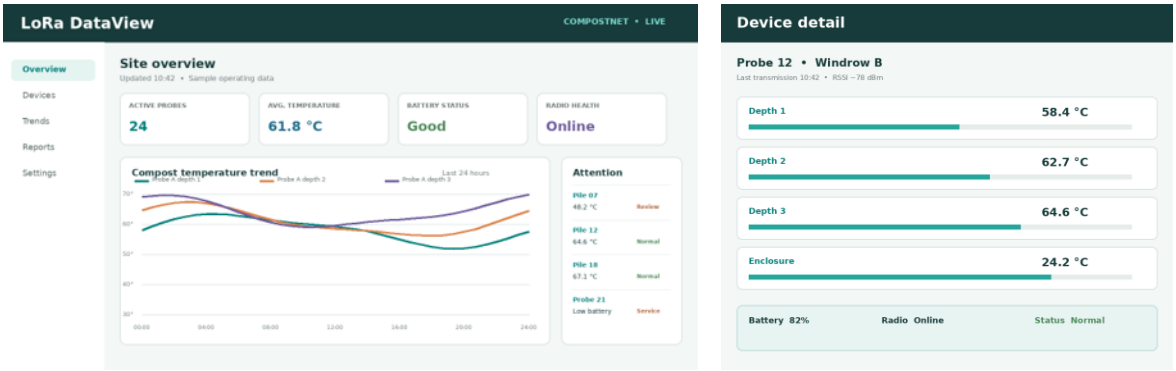






LoRaCube – all in one
Optional packaged system communicates with the probes

Base Package – LoRa components are supplied separately with a laptop preloaded with necessary software and tested. All probes purchased at the same time are preconfigured on the laptop software and verified.



Illustrative LoRa DataView screens showing a site overview, temperature trends and individual probe status. Display content may vary by system configuration and software version.

Application Server and Software:

Data from the compost probes is transmitted wirelessly to the Aysix-Intempco LoRa Cube; a compact, all-in-one, space-saving solution designed to support multiple wireless sensors. This highly integrated device combines a LoRa gateway with an embedded server, offering reliable, long-range, low-power communication. The embedded server processes and stores sensor data, while the accompanying LoRa Dataview application software allows multiple users to query the server database, to generate regulatory reports, or to take immediate action to adjust the composting process.

Turn field readings into useful operating information

LoRa DataView presents current and historical CompostNet measurements in a clear operator interface. Users can review temperatures at multiple probe depths, follow trends, verify communications and battery condition, and retrieve time-stamped records for operational or regulatory reporting.

Live overview

See current temperatures and connected-device status across the site.

Trends and history

Compare sensing depths and review how each pile changes over time.

Device diagnostics

Check battery condition, enclosure temperature, time stamp and RSSI.

Optional Communication Protocols

Communication Protocols: For complex facilities with automated aeration and irrigation systems, CompostNet offers optional communication protocols, including MODBUS, to facilitate integration with a programmable logic controller (PLC) or Supervisory Control and Data Acquisition (SCADA) system. This allows temperature information to become part of a broader plant monitoring or control strategy. Required protocol, data points, register mapping, network architecture and control responsibilities are confirmed during system design. Optional interfaces are supplied only when specified.

Discuss your compost monitoring application with Cancoppas

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