TubeSense® Pharma

A smart solution for temperature monitoring for the safe transport of temperature-sensitive pharmaceuticals

Safe logistics in healthcare

When transporting biological samples or temperature sensitive pharmaceuticals, it is vital that the transport conditions remain within set guidelines. From now on, this can be monitored with TubeSense®: Equipped with an accurate temperature sensor and Near Field Communication chip (NFC), the reusable TubeSense® temperature logger offers a smart solution for the logistics of both biomedical samples (blood, urine) and temperature sensitive pharmaceuticals.

The TubeSense Cloud Solution

With TubeSense®, with one simple scan of the logger, all relevant data, including sample specification, temperature history during transport and storage, and all *tracking & tracing information* is securely stored in the TubeSense-Cloud and via links stored in the hospital and/or laboratory information system. TubeSense® has a solution for both the distribution of temperature sensitive pharmaceuticals and for transporting individually packaged and trans-ported biological samples and proprietary materials.
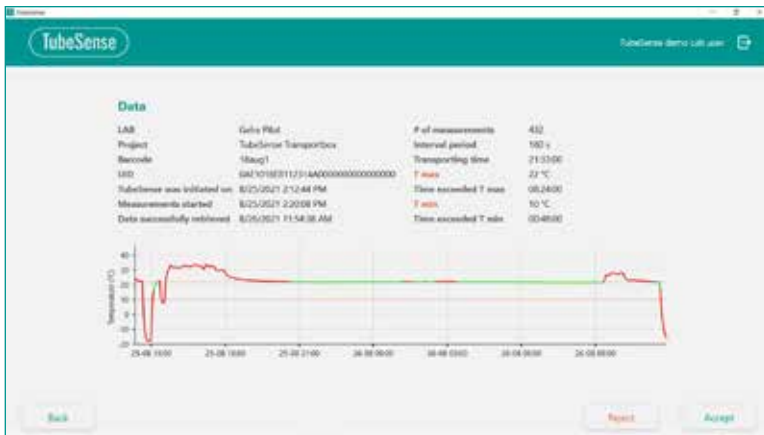
Distribution of temperature-sensitive pharmaceuticals

Various pharmaceutical products require a certain form of temperature-controlled logistics. This means that during storage, preservation and transport of materials that are sensitive to atmospheric conditions, the conditions must remain within predetermined limits. Failure of temperature-controlled logistics can lead to risks: (1) A patient may be administered an unsafe product, with potentially serious consequences for health and well-being. (2) Non-compliance with global regulations and standards may increase liability. (3) Thermal variability can lead to inconsistent results between and within batches. And (4) The shipment may be incorrectly rejected by the quality department leading to costly delays. TubeSense® mitigates these risks by establishing

TubeSense temperature monitoring

To monitor the temperature-sensitive shipment, the TubeSense temperature logger is attached in or on the packaging and activated by means of an NFC reader. All data required for identification is stored together with the required temperature profile and linked to the Cloud server. Upon arrival at the destination, the TubeSense temperature logger is scanned again, reading the measured temperature history and sending the tracking & tracing data to the TubeSense Cloud. If the measured values deviate from the preset temperature profile, a warning is immediately sent to the responsible staff.

TubeSense® offers:

- Item-level identification of PGM (e.g. blood, urine) and temperature-sensitive pharmaceutical products;

- Precise temperature monitoring at defined intervals, based on required temperature profiles (measuring intervals are specified per batch);

- Tracking & tracing during key phases in the process (shipping, time of activation, proof of receipt on entry into the laboratory);

- A cost-efficient solution as the temp. logger is reusable;

- Memory for storing up to 15K measurement values with a resolution of 0.3°C;

- An attractive solution for temperature recording of individual samples and packages due to its compact size, secure attachment to packages (independent of tube size) and low costs;

- Activation of temperature monitoring by the user;

- A secure, fast and user-friendly solution based on Near Field Communication (NFC);

- A dashboard for analyses with statistics and Key Performance Indicators (KPIs);

- A Cloud server solution with both desktop app and mobile app front-ends with customised look and feel;

- Optional integration with Lab Information Management Systems (LIMS) and/or Hospital Information Systems (HIS);

- An AVG-safe solution because TubeSense® does not use or store personal data;

- Anti-tampering functionality.

TubeSense® specifications

Temp. range	-40°C to +85°C
Accuracy	±0.3°C between 0°C and 40°C ±0.5°C between -40°C and +85°C
Calibration	Not required (pre-calibration, according to ISO/IEC 17025 temperature calibration procedure)
Logging interval	Adjustable from 10 seconds to 2.5 hours
Starting options	By removing plastic tab or via NFC
Stop options	If the memory is full or via reading with NFC
Memory	~15,000 measurements
Interface	Smartphone with NFC or a PC with NFC reader
Data storage	Data is stored in an SQL database for analysis (dashboard). An API to LIMS is available.
Battery	CR1225 coin cell battery, 3V, 45-70 mAh*.
Lifetime	Approx. one year (depending on measurement frequency)
Sensor location	Can be clicked onto any tube or attached to a transport box with a sticker
Material	Resistant polypropylene enclosure
Dimensions	40 x 15 x 4 mm (L x W x H)
Weight	<10 grams
Warranty	1 year

A replaceable battery is preferred over all currently available rechargeable battery technologies because it is lighter and smaller, more cost-effective, super reliable and safe to ship. And because of its closed-loop operation, the batteries can be safely recycled after return to the laboratory.