



A Smart Label that Records Time and Temperature

TT Sensor Plus™ 2

Producers and purchasers of temperature-sensitive products, like pharmaceuticals, food and floral, have a vested interest to ensure the quality of their products, as well as to identify supply chain issues that may lead to compromised products.

To address these needs, Avery Dennison offers the TT Sensor Plus™ 2 - a cost-effective, smart packaging solution that not only logs time and temperature, but offers a complete solution with multiple services such as cloud environment, application programming interface and individual calibration capabilities.

How It Functions

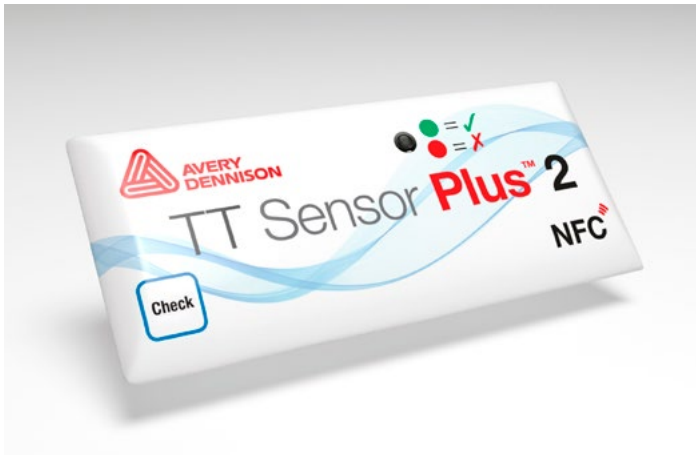
TT Sensor Plus 2 records the temperatures an item is exposed to throughout its supply chain journey. Based on the temperatures the product is exposed to, TT Sensor Plus 2 can indicate if the item is suitable for its intended use. The data is stored in a near field communication (NFC) chip and can be uploaded to a smartphone or computer at anytime, anywhere throughout the supply chain.

The technology incorporates sensor functionality and temperature data logging capabilities in a cost effective packaging solution. When affixed to a product or container, the small, thin solution can be programmed by the user to record the temperature history of goods at defined intervals during shipment.

Once a shipment reaches its destination, the temperature data can be uploaded to a smartphone or computer, reviewed and/or sent to the cloud with the easy-to-use TT Sensor Plus 2 mobile app. Each TT Sensor Plus 2 also contains a unique identifier (UID).

Desirable Form Factor

With its built-in battery and NFC chip, the TT Sensor Plus 2 has a very desirable form factor. About one-third the size of a credit card, the TT Sensor Plus 2 can be placed on (or in) cartons of various sizes. This is especially attractive to the food, pharmaceutical, beverage and films industries.



More Cost-Effective

The TT Sensor Plus 2 is designed to replace more costly, bulky device style, data loggers.

In addition, many of today's data loggers have a cumbersome return process. Loggers are often lost or not returned which comes at great expense to the customer. The TT Sensor Plus 2 is designed for a one-time use.

More Sustainable

TT Sensor Plus 2 can provide useful time-temperature information to correct temperature excursions in the supply chain journey, allowing customer to reduce product loss and waste.

Features and Benefits

- > Low cost and accurate time-temperature data logger
- > Small, one-third the size of a credit card with easy set up
- > Programmable logging and wireless data transfer
- > Provides data to help improve shipment quality, inventory and logistics
- > Can help reduce product loss

Applications

- > Pharmaceutical and medical
- > Food and beverage
- > Chemicals and polymers
- > Other temperature-sensitive goods

Key Features

Key features of the TT Sensor Plus 2 smart labeling system include:

- > Up to 150,000 data points
- > Battery life more than three years after product activation
- > LED for visual temperature alarm
- > Button to check status (operating yes/no)
- > Operating temperature range of -20°C to +70°C
- > Temperature accuracy of $\pm 0.3^{\circ}\text{C}$ from 0°C to $+40^{\circ}\text{C}$ (or $\pm 0.5^{\circ}\text{F}$ from 32°F to 104°F); $\pm 0.5^{\circ}\text{C}$ or $\pm 0.9^{\circ}\text{F}$ for the rest of the temperature range
- > Temperature resolution = $.1^{\circ}\text{C}$
- > UTC real-time clock for data logging
- > Embedded NFC and temperature sensor microchip
- > Corresponding PC software and mobile app to read and manage temperature and shipping data
- > Cloud service and cloud service integration available (discuss with your Avery Dennison contact)

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*All statements, technical information and recommendations about the product pertinent to the subject matter of this preliminary product specification are based upon preliminary evaluation but do not constitute a guarantee or warranty.

All information is believed to be reliable and accurate. However, the furnishing of such information and comparisons is for reference purposes only and does not constitute a warranty of any kind. Actual product performance should always be tested for fitness-for-use

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