

# TempMonitor BLE

The TempMonitor BLE is wireless Bluetooth® Low Energy temperature logger purpose-built for storage and site monitoring of pharmaceuticals. It records and transmits temperature data to the TSS Cloud via the TSS Gateway enabling GxP-compliant monitoring and full traceability across storage environments.

## Key Features

- Automatically records data and uploads it to TSS Cloud for continuous monitoring, supporting GxP compliant product releases.
- Integrated with Facility Site Monitoring and Clinical module applications for site-specific control and real-time data visibility.
- Records up to 50,000 data points and monitors drugs across a range of -200°C to 80°C using external probes.
- Logs and stores data even when wireless connection to the gateway is temporarily unavailable.
- The LCD display indicates the current status and has an intuitive user interface for simple navigation.
- Buttons are available to initiate logging, toggle temperature readings and mute the buzzer.
- The probes are designed to avoid unintentional disconnect.



## Wireless Data Transmission in Real Time

The TempMonitor BLE (TM BLE) wirelessly transmits real-time data to the TSS Cloud via the TSS Gateway ensuring data integrity and secure connectivity through cellular, Ethernet, or Wi-Fi. Delivered as a plug-and-play solution, it provides a powerful and cost-effective network designed for large-scale and sustainable deployments

## Real-Time Visibility Across All Locations

The TSS Facility Module provides real-time remote monitoring of storage temperatures using TM BLE data. It delivers instant alerts and full audit trails, ensuring GxP-compliant, reliable storage control across clinical sites, pharmacies, and warehouses

The TSS Clinical Module automates temperature monitoring and stability assessment at the kit level. By evaluating data against predefined stability budgets, it enables immediate release or quarantine decisions, reducing manual workload, minimizing waste, and ensuring product integrity and patient safety throughout the clinical supply chain.

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| Technical specification: TM BLE |                                                                                                                                                                                       |
|---------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Type                            | Wireless Bluetooth® 5 Temperature Data Logger for monitoring ambient, cold, and ultra-cold storage conditions of pharmaceuticals                                                      |
| Operating Range                 | -30 °C to +70 °C internal sensor<br>-40 °C to +80 °C Probe TMBLE 100<br>-90 °C to +30 °C Probe DI TMBLE 100 and Probe DI TMBLE 300                                                    |
| Sensors                         | High accuracy digital temperature sensor   External probe (Pt100, requires M8 connector)                                                                                              |
| Temperature Accuracy            | ± 0.5 °C between -30 °C to +70 °C internal sensor<br>± 0.3 °C between -40 °C to +80 °C Probe TMBLE 100<br>± 1.0 °C between -90 °C to +30 °C Probe DI TMBLE 100 and Probe DI TMBLE 300 |
| Temperature Resolution          | 0,0125 °C Probe TMBLE 100<br>0,1 °C Probe DI TMBLE 100 & 300                                                                                                                          |
| Memory Capacity                 | 50 000 Data Points                                                                                                                                                                    |
| Sample Rate                     | 1 min to 18 hours                                                                                                                                                                     |
| Start Delay                     | 0 min to 30 days                                                                                                                                                                      |
| Temperature Alarms              | Total of 10 individual configurable high/low alarms with 6 different alarm types                                                                                                      |
| Other Alarms/Events             | Calibration Expiry, Battery, Probe Disconnect, Low Memory                                                                                                                             |
| Audible Alarm/Events            | Yes                                                                                                                                                                                   |
| Buttons                         | Start, Toggle Temperature, Mute                                                                                                                                                       |
| Battery                         | 3 x AAA Alkaline 1.5V (removable) Approx. 12-month continuous operation with 5 min sample rate and 15 min communication interval                                                      |
| Security                        | Highly secure utilizing BLE 5.0 encryption                                                                                                                                            |
| Compliance                      | RoHs, CE, FCC, DO-160G, UN38.3, GAMP5, EN12830                                                                                                                                        |
| Calibration                     | Each unit is delivered with a calibration certificate from accredited ISO-17025 laboratory                                                                                            |
| Dimension   Weight              | Approx. 100 mm x 80 mm x 30 mm   Approx. 118 g                                                                                                                                        |
| Housing   Display               | Blistered rugged plastic   LCD, size 53 x 42 mm                                                                                                                                       |
| Traceability                    | Unique 16-character ID number that allows for absolute traceability                                                                                                                   |
| IP Classification               | IP44                                                                                                                                                                                  |
| Accessories                     | Probe TMBLE 100 (-40 °C to +80 °C) with glycol filled bottle 10 ml and 30ml, Probe DI TMBLE 100 (-90 °C to -30 °C 1m cable), Probe DI TMBLE 300 (-90 °C to -30 °C 3m cable)           |

### About TSS

TSS is a world-leading supplier of temperature monitoring solutions. For the past 30 years we have been helping life science companies to ensure drugs are safe on delivery. Our cloud analytics solution has been developed together with world-leading pharmaceutical companies and is a key component of a risk-based approach to managing the supply chain.