

Temperature monitoring in medical refrigerators using the **testo 176 T2 data logger.**



All over the world, an increasing number of medical products need to be placed in cold storage, and many are even subject to cold chain requirements. These include antibodies, live vaccines, insulin or infusions. The +2 °C to +8 °C temperature range in particular needs to be continuously monitored in order to guarantee the efficacy of many drugs. If these values are exceeded or undershot, the preparations may be damaged. This would result in an increased risk for patients as well as financial losses.

Thanks to the reliable, high-precision recording of readings offered by the testo 176 T2 data logger, temperatures in medical refrigerators can be continually monitored and documented. The data logger's non-volatile memory and tamper-proof file format also offer an especially high level of security.



The challenge.

In many respects, pharmaceuticals are extremely temperature-sensitive. This is primarily due to proteins, which are found in many drugs. These proteins are extremely sensitive to changing environmental influences, in particular to temperature fluctuations. Even one-time freezing can have such an adverse effect on the composition of the drug containing them that its efficacy may be diminished or even lost completely. In the worst case scenario, toxic degradation products may even be formed which, unlike in food, are not easily detected outwardly, but can nevertheless cause major damage.

However, it's not only the drugs per se, or their constituents, that are at risk when stored outside the permissible temperature range. Their storage vessels or packaging are also affected: This is because sub-zero temperatures or major fluctuations in temperature can cause hairline cracks in ampoules and glass containers or dissolve glass constituents (known as leachables) out of the glass. This can result in impurities and even loss of sterility.

In order to prevent this, those in charge depend on a measurement solution on-site that can measure temperature values reliably, document securely, function reliably even in the event of power failure, and clearly indicate any temperature limit value violations.

The solution.

The testo 176 T2 data logger, combined with the Pt100 ribbon cable probes, which can be ordered separately, offers an excellent opportunity to conquer the challenge of temperature monitoring in medical refrigerators.

This solution package offers:

- High-precision measurement data and hundred percent reliable measurement, thanks to Pt100 technology with an accuracy of ± 0.2 °C.
- Uninterrupted recording thanks to the data collection function, via a standard SD card. Therefore the logger does not need to be taken out of the refrigerator to read out data.
- Logger installation outside the refrigerator. This is made possible by the extremely thin ribbon cable probes. As a result, the logger can be operated and read without opening the refrigerator door.
- A clear indication of limit value violations on the large, easy-to-read display. If required, there is the option of alarm acknowledgement on the instrument itself.
- High level of safety and authenticity for the data recorded, thanks to recording in tamper-proof format and the use of a non-volatile memory. This permits the reading of recorded measurement data even when the batteries have been completely drained.
- A memory of 2 million readings and a battery life of 8 years.
- The choice of different software versions for configuring and reading the data logger:
 - ComSoft Basic (available to download free of charge)
 - ComSoft Professional (for in-depth analysis of the measurement data)
 - ComSoft CFR (validatable software for compliance with the 21 CFR Part 11).
- Services in the field of calibration, qualification and validation by Testo Industrial Services, a subsidiary of Testo AG.



The probe is placed in a glycol solution to simulate the storage temperature of liquid products.



The Pt100 sensor technology provides high-precision measurement results.



Easy data collection via a standard SD card. The logger can be hung on the refrigerator.



testo 176 T2 – all the advantages at a glance:

- High data security
- Memory for 2 million readings
- High-precision Pt100 sensors

More information.

For more information and answers to all your questions concerning temperature monitoring in medical refrigerators at www.testo.com.