
Maximum
reliability.
For laboratories
and their results.

LIEBHERR

SmartMonitoring



More time for the most important tasks. Thanks to digitalisation.

Working in a lab requires meticulous precision and the highest levels of concentration. With a steady hand and a sharp eye, this is often where the basis for vitally important health decisions is developed. Unfortunately though, there is increasingly less time left over for this highly important task.

In a study conducted by the Fraunhofer Institute, lab staff complained that they spend 25 % of their time on non-value-adding tasks. Moreover, managers lose up to a third of their work time to checking, evaluating and documenting samples and data.*

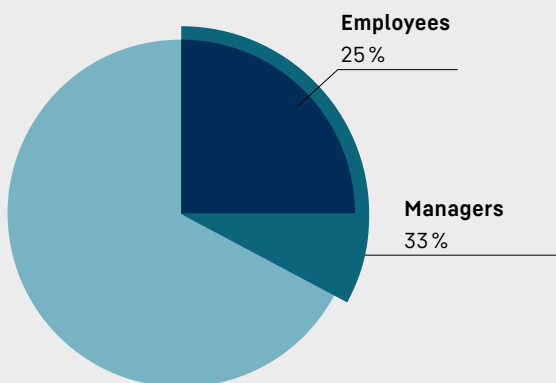
High demands with an increasing workload.

The reason why there is too little time left over for the most important tasks is simple: As the study also shows, laboratories have not been fully exploiting the potential of digitalisation. At the same time, work pressure and demands are constantly increasing – also with regard to the proper storage of highly-sensitive substances. Not only must samples be kept cool at constant and precise temperatures, lab staff must also constantly monitor the temperature, check the storage conditions and ensure complete documentation of all relevant data. This generates a huge amount of data, which takes an equally large amount of time to analyse. Not to mention the monotonous work processes it involves.

Digitisation creates the additional time.

The increasing digitisation of labs creates the time needed to concentrate on the most important work. Measuring devices, sensors, processes, databases and dashboards are networked with each other, exchange and evaluate data, document it and independently derive necessary measures from it. Lab staff can dedicate themselves to value-adding tasks. There is also a digital solution especially for the reliable-temperature and storage conditions and their complete documentation, which leaves more time and freedom for the actual work: SmartMonitoring from Liebherr.

Proportion of a laboratory working day taken up by non-value-adding tasks*



Complex and time-consuming tasks that can be performed digitally in laboratories:

- Ensuring constant and precise cooling of temperature-sensitive substances
- Reliable monitoring of temperatures and storage conditions
- Complete documentation and evaluation of all relevant data

The challenges of storing temperature-sensitive samples in labs.

Problem 1: Time-consuming documentation

A familiar, but much unloved task: documentation in daily lab work. Every activity in the system, every change, every measure and every result relating to the storage of samples and medications has to be transparently documented, in order to be able draw conclusions about errors and analytical results. For complex analyses, manual, complete documentation is difficult to achieve in addition to regular workloads. In addition to losing data and information which could be important in the future or be required as part of obligations to provide supporting documentation, productive work time is also lost. However, lab staff prefer to conduct these tasks themselves instead of delegating them to a digital solution. This is due to reservations about training staff to use a digital monitoring system and doubts about its reliability.

Problem 2: Storage temperature fluctuations

In many laboratories, the cooling of sensitive substances is a recurring and problematic issue. Reliable cooling ensures a precise, constant temperature and creates the ideal conditions for each type of sample or medication. After all, temperature deviations can have far-reaching consequences and ruin months of research work in moments. As soon as fridges and freezers come into play, the fear of unnoticed temperature deviations is therefore always present.

Problem 3: A lack of alarms in the event of deviations

If an analytical procedure or the cooling does not run according to plan, staff often only notice this when it is already too late. The storage temperature has been too high or too low for too long, the sample is already unusable or the entire test fails due to avoidable errors. A lack of early warning systems, which trigger alarms as soon as the data changes in an unexpected way, is responsible for this. Some laboratories do have warning systems, however they often only trigger alarms on-site. This means that after hours or at the weekend an empty laboratory is prompted to respond immediately. And the next working day staff arrive to an unpleasant surprise.

Daily challenges for lab staff when storing sensitive substances:

- **Complete documentation** of temperatures and storage conditions during regular work hours is difficult to achieve
- **No free time**, for training staff to use monitoring systems
- Constant concerns about **unnoticed temperature deviations**
- Unusable samples and/or analyses in the event of deviations due to a **lack of alarm systems**

The most efficient solution for reliable storage in laboratories: digitalisation.

Solution 1: Setting up complete documentation, simply and conveniently

Complete documentation must be provided to be able to track each development in a sample analysis. All of the sample's cooling parameters must be constantly monitored and recorded. As manual documentation should never be incomplete, a digital method must be established which is not only reliable and maintains an overview of all values around the clock, but also stores documentation in a way that is accessible at all times.

Solution 2: Setting up and evaluating an extensive information base

Digital documentation not only helps to fulfil external regulations, it also assists with internal issues. If processes, such as an analysis set-up, are optimized, they will prove to be an important decision-making tool. The data gathered is evaluated and appropriate measures are defined. Manual evaluation is prone to errors and therefore difficult to carry out successfully. Digitalisation also creates additional transparency here, too.

Solution 3: Establishing reliable alarm systems

In some laboratories, the storage conditions are still manually checked at regular intervals. Alarm systems are not operational. If an error occurs between checks, it often remains unnoticed for too long, due to flexible work hours, holidays or remote working. Digital alarm systems offer maximum reliability here, and offer additional flexibility to labs in terms of time, location and staff presence.

Solution 4: Maintaining an overview of everything at all times

A digital solution can be used for multiple sites and enables a quick overview of several laboratories. All relevant data from the various locations is bundled together and an overview is displayed on a dashboard. Furthermore, all critical parameters can be easily accessed at all times and from any location.

Solution 5: Defining individual thresholds for pre-warning levels

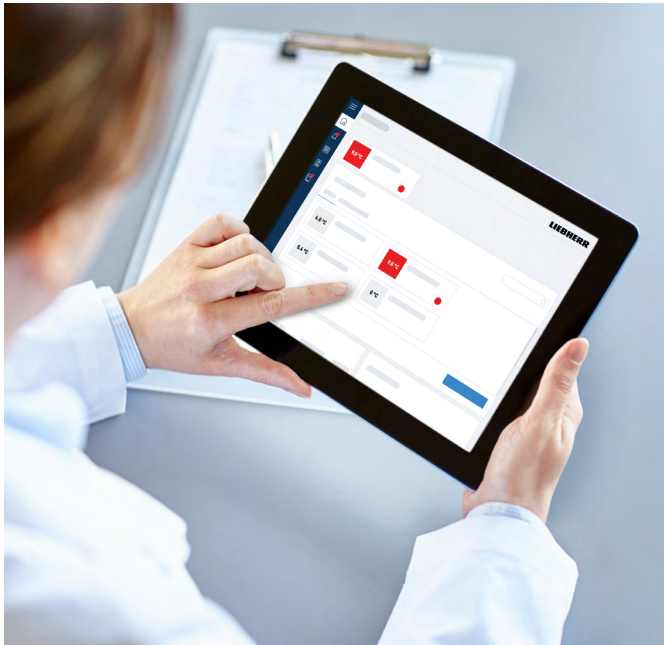
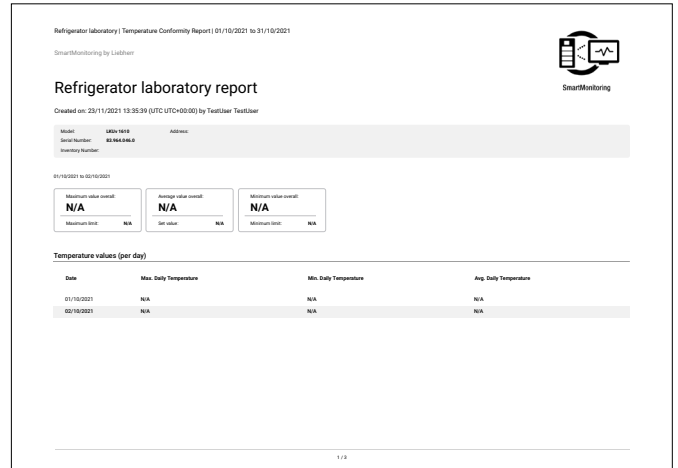
For highly-sensitive substances, it can make sense to define individual thresholds that must not be exceeded or fallen below at any time. If these thresholds are reached a cloud alarm is triggered – even before the appliance alarm is triggered. This pre-warning level can be additionally set for particularly sensitive samples, for example, and can sometimes be decisive for the success of a research project.

Services of a digital solution for the safe and efficient storage of samples:

- Complete documentation around the clock with no additional effort required
- More transparency as the basis for process optimisations
- Reliable alarm independent of time, location and staff presence
- All relevant data accessible at any time and from anywhere at a glance, also from different sites
- Pre-warning level via cloud alarm with individually definable temperature thresholds

Maximum reliability with SmartMonitoring.

Liebherr's SmartMonitoring is an ultra-modern system that brings increased reliability into every laboratory. The digital monitoring solution provides staff with more time to concentrate on their most important tasks.



The fridges are networked with the organisation's internal network and the Liebherr dashboard via a SmartCoolingHub. The system automatically gathers operational data, alarm messages and appliance statuses, then saves and processes it. A clearly arranged, web-based dashboard displays messages and data reliably, enabling manual monitoring as well. Evaluations and reports are available at all times. Reliable alarm systems warn immediately by email and, if required, also by voice call and SMS. And best of all: Despite its extensive features, SmartMonitoring is intuitive and easy to use.

This means that lab staff can concentrate on what's really important: the results of their valuable work.

