

## Save time and money in the sterilization and pasteurization of foods with the **testo 191 data logger system.**



Temperature and pressure must be constantly monitored in the sterilization and pasteurization of foods. This ensures that the measuring values required for the respective preservation process are adhered to and that the temperature is uniformly distributed in the corresponding systems.

The testo 191 data logger system is the intelligent solution for the monitoring and documentation of temperature and

pressure in autoclaving and freeze-drying processes. The system consists of four temperature data loggers, one pressure data logger, one multifunction case and software for programming and readout of the loggers.

The smart all-in-one solution from Testo enables you to monitor production processes more efficiently and optimize them sustainably. This means you reliably adhere to quality standards and save time and money every day.



Pasteurizing fruit juice beverages.

## The challenge

According to the stipulations of the EU hygiene package, in particular directive (EC) no. 178/2002 and directive (EC) no. 852/2004, the responsibility for food safety lies with the food producer.

The latter must introduce a self-monitoring system (HACCP) based on a risk analysis and define critical control points and production processes which are to be used. In particular when it comes to thermal preservation, they must validate and document the safety and efficacy of the production process through continuous time and temperature measurements.

In especially critical processes, if necessary the preserved product must not even be released or further processed without an analysis of the temperature and pressure data.

In addition to the efficacy of the process, the food producer must ensure, by means of regular testing, that the equipment and systems used for the preservation process are functioning correctly according to their specifications.

However, it is not only the safety of the foods which is of interest during preservation. The flavour and texture of the final product are also in focus, because in the end, they are crucially dependent on constant conditions during the preservation process.

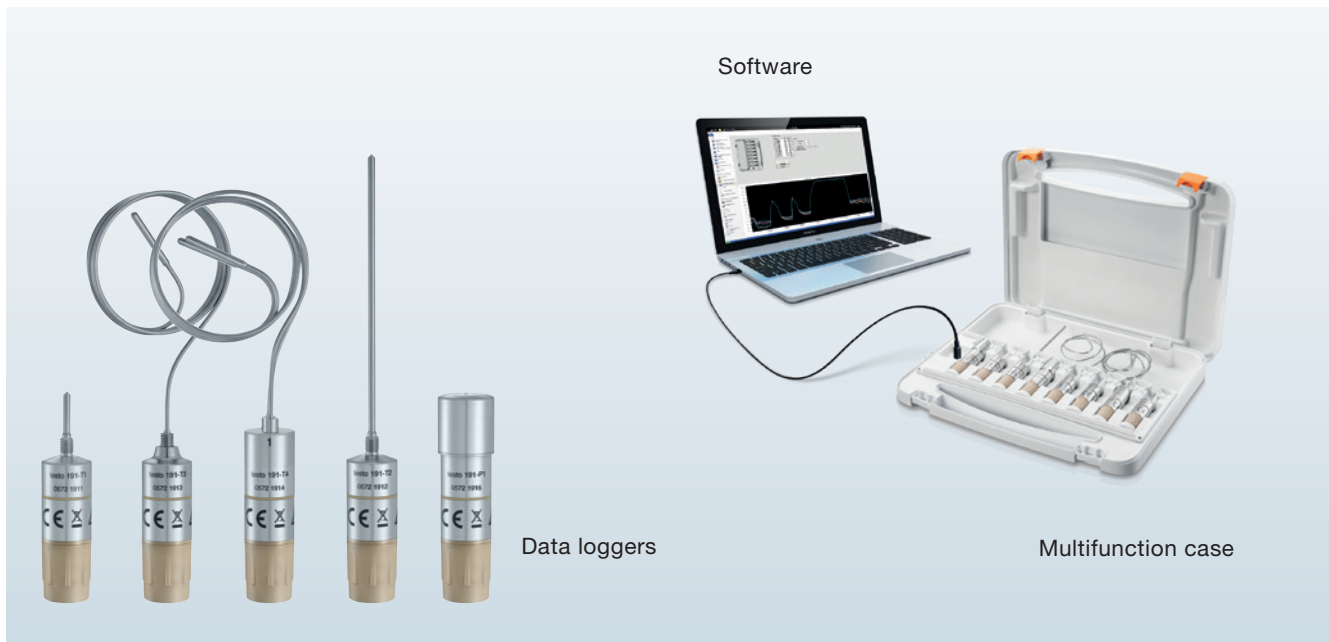
Both the results of the temperature and pressure monitoring during the preservation process and the results of the validation of the systems used must be impeccably documented by the staff responsible and provided as proof for internal or external audits.

In order to fulfil these requirements, quality supervisors generally rely on system solutions consisting of data loggers and software. However, these are often complicated to handle and susceptible to wear, making daily work more difficult than necessary.



Autoclaving canned sausage.

## The solution



The testo 191 data logger system simplifies the monitoring and documentation of temperature and pressure in sterilization, pasteurization and freeze-drying processes. It comprises five data loggers, intuitively operated software and one multifunction case.

### The data loggers

The data loggers for temperature are made of stainless steel and robust polyether ether ketone (PEEK). Both materials are food safe, and both the loggers and software are HACCP International certified.

Due to their small design, the data loggers can be used without any problems even in systems with little space and in small tubular bags, jars or cans. Flexible measurement probes with a length of up to 775 mm enable measurement between products or in other gaps in a system which are difficult to monitor. The size of the data loggers can also be varied by the use of two batteries of differing heights, which can be freely combined with all data loggers.

The measuring range of the data loggers goes from -50 to +140°C or 1 mbar to 4 bar abs. The probes of the models are rigid or flexible and differ in length (rigid: 25 mm and 115 mm, flexible: 775 mm).

### The battery concept of the data loggers

A world innovation of the system greatly facilitates the work of quality supervisors in the food industry: the data loggers' battery and the measuring technology are contained in two separate housings. The screw cap enables both battery types to be quickly and easily changed without any tools at all. And after the battery change, the loggers remain 100% tight.



The testo 191-T1 data logger in both battery versions.



Equipped for every challenge: testo 191 in use.



Temperature measurement in a can:  
testo 191-T1 + stand



Temperature measurement directly in the food:  
testo 191-T1



Temperature measurement in a can/bottle with the logger fitted externally:  
testo 191-T2 + can and bottle attachment



Measurement of ambient temperature:  
testo 191-T1 + retaining clamp and cable tie (cable tie not included in the scope of delivery)



Temperature measurement in particularly deep cans/ bottles:  
testo 191-T3 + can and bottle attachment



Temperature and pressure measurement for sterilization in autoclaves:  
testo 191-T1 + testo 191-P1



Depending on the application, you can vary the size of the logger through our flexible battery concept.



Temperature measurement in freeze-drying:  
testo 191-T3/-T4 + freeze-drying probe holder



Because only safe foods really taste good: testo 191-T2 with can and bottle attachment measuring the temperature of a fruit juice.

**The multi-function case**

The transport case with integrated programming and readout unit is also used to configure and read out up to eight data loggers in parallel. Configuration and readout are carried out by USB via the testo 191 professional software. An image of the case and the loggers contained in it is displayed here. All that remains to be done is to set the relevant parameters - now it's ready to use.



Multifunction case for up to eight data loggers.





**The testo 191 professional software**

In contrast to other software solutions for sterilization and pasteurization data loggers, the testo 191 professional software is impressive due to its unambiguous user guidance and the clear focus on only those functions which you really need for your daily work. And their use is intuitive and self-explanatory:

- When programming the data loggers, the choice is yours. You can configure each data logger individually or simultaneously transfer one configuration to up to eight data loggers.
- The exemplary visualization and explanation of individual process parameters (e.g. temperature span, minimum hold time, maximum acclimatization time, etc.) support you in the definition of the measurement parameters.
- The starting time of the measurement is freely selectable – either a certain time or when a defined measuring value is exceeded or undershot.
- After the measurement is finished, you immediately see whether it was successful or not. You can visualize the measurement results individually for each logger, or in parallel for all those used, in a graph or table.
- Upload photos of the system being used and position the data loggers in the measurement procedure on them, in order to visualize the measurement set-up more clearly.
- Additionally, you can display the temperatures measured over time in the system image.
- Reports are created automatically, but can also be configured individually. You can get a pdf at the touch of a button.



## Fast, efficient, reliable: The advantages at a glance.

Reliable technology with the highest level of precision, seamless integration into your processes and increased efficiency in the daily workflow: with the testo 191 data

logger system you save time and money when monitoring temperature and pressure in sterilization, pasteurization and freeze-drying processes.

### Save time

- No preparation time is needed for measurements with the testo 191 data loggers (e.g. for cable bushings or sealing).
- The data loggers' batteries can be changed quickly and securely.
- You can simultaneously programme and read out up to eight data loggers in the multifunction case.
- The intuitive software and the 1-click report save you time when evaluating and documenting the measurement data.

### Measure more efficiently

- Equipped for every measuring task: the intelligent battery concept means you can adjust the logger size to the space available.
- The long, flexible probes of the testo 191-T3/-T4 measure even in difficult-to-access areas.
- Using the testo 191-T4, you can take two readings or measure temperature differences with just one logger.

### Rely on your equipment

- The innovative design of the data loggers ensures 100% tightness after the battery is changed.
- High-quality materials and the innovative construction make the testo 191 data loggers particularly robust and durable.

### More information.

You can get further information and answers to all your questions concerning temperature and pressure monitoring for sterilization and pasteurization from our experts.