

Be sure. **testo**



Durable: ✓
Intuitive: ✓
Reliable: ✓

Highly efficient validation of your sterilization and freeze-drying processes with the testo 190 CFR data logger system.

Comprehensive support: Your validation with Testo.

The validation of sterilization and freeze-drying processes is a key element of your quality assurance and shows the high level of safety of the products you make. With our testo 190 CFR data logger system, we support you according to your needs in terms of fulfilling all regulatory requirements in a highly efficient way.

Entrust your whole validation process to us and take advantage of a resource-friendly, full-service solution enabling you to reliably achieve your GMP compliance. Alternatively, we are happy to support you with individual services specially tailored to your needs, such as training courses, calibrations, qualifications and validations. In all respects, Testo is your reliable partner when it comes to meeting your individual requirements.



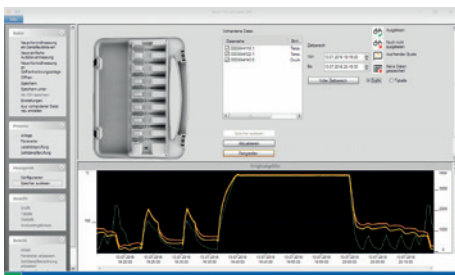
Hardware, software, service: Your building blocks for efficient validation.



The CFR data loggers come in four temperature and one pressure models. They stand for robustness, durability and reliability. The thread means batteries can be safely changed in just a few seconds without any tools. Thanks to the logger's hermetically sealed design, it remains 100% tight even after the battery has been changed.



The multifunction cases are available in two sizes and are used for programming and readout of the loggers, as well as for storage and secure transport. Both cases provide space for a programming and readout unit where up to 8 data loggers can be simultaneously read out and configured. The large case has holding mechanisms for up to 32 loggers and up to 25 batteries, along with extra storage space for accessories. This makes transport convenient and the on-site validation process easier.



The data loggers are programmed and read out using the intuitive testo 190 CFR software. No data export is needed for data analysis (e.g. in Excel). 1-click report means that full, audit-relevant documentation can be achieved with just one click of a mouse. 21 CFR Part 11-compliant of course.



Calibration
Of data loggers as well as autoclaves and freeze-drying systems.

Innovation in the smallest space: The advantages of the testo 190.

The testo 190 CFR data loggers for temperature and pressure are available in five different versions. Hermetically sealed measuring technology in a separate stainless steel housing means their reliability and maximum robustness are impressive.

The battery can be changed quickly and safely without any tools or lubricants at all. And you will also have no problem meeting the "10% failure rate" acceptance criterion with the testo 190.

Versatile probes

Measurement probes are available in different serial designs and adaptable according to customers' wishes.

Easy securing option

Practical solution for attaching the retaining clamps.

Robust stainless steel

The measuring technology is fitted into a hermetically sealed stainless steel housing.

Reliably tight

The data loggers remain 100% tight even after the batteries are changed.

Resilient plastic

The battery housing is coated in high-temperature-resistant polyether ether ketone (PEEK).

Flexible height

Depending on the measuring task, you can adapt the height of the data loggers via the batteries which are available in two sizes.



Unique design

The battery and the measuring technology are contained in two separate housings.

Fast battery change

Thanks to the innovative design, the batteries can be safely changed in just a few seconds without any tools.



Practical accessories



Small battery

With a service life of 250 operating hours and compact dimensions ideally suited to confined applications.



Probe holder (puck)

The probe holder ensures precise measurement of the surface temperature (plate temperature) in a freeze-drying system.



Retaining clamp

In combination with cable ties, the retaining clamp enables easy and safe securing of the logger, without any residues being left behind.

At a glance: A comparison of the data loggers.



CFR data loggers	testo 190-T1	testo 190-T2	testo 190-T3	testo 190-T4	testo 190-P1
Measurement parameter / probe type	Temperature (Pt1000)				Pressure (piezoresistive sensor)
Measuring range	-50 to +140°C				1 mbar to 4 bar abs.
Accuracy	±0.1°C				± 20 mbar
Resolution	0.01°C				1 mbar
Reading memory	60,000 readings			30,000 per channel	60,000 readings
Measuring cycle	1 s to 24 h				
Storage temperature	-20 to +50°C				
Dimensions					
Logger with small battery	20 x 40 mm (Ø x H)		20 x 45 mm (Ø x H)	20 x 53 mm (Ø x H)	22 x 64 mm (Ø x H)
Logger with large battery	20 x 59 mm (Ø x H)		20 x 63 mm (Ø x H)	20 x 72 mm (Ø x H)	22 x 83 mm (Ø x H)
Probe shaft	3 x 25 mm	3 x 115 mm	1.5 x 775 mm		-
Probe shaft tip	-		3 x 25 mm		-
Battery large (standard)					
Battery type	½ AA lithium				
Service life	2,500 operating hours (measuring cycle 10 seconds at 121°C)				
Application range	-50 to +140°C				
Battery small (option)					
Battery type	2 x button cell lithium				
Service life	250 operating hours (measuring cycle 10 seconds at 121°C)				
Application range	-20 to +140°C				



The multifunction case: Configuration, readout, transport.

The two multifunction cases, which are available in different sizes, are each equipped with an integrated programming and readout unit. Up to 8 data loggers can be configured and read out simultaneously in both cases. The large case also offers specially made holding mechanisms for multiple data loggers and batteries. In addition, the programming and readout unit can be removed with this model.

Once the readout process has been completed, the loggers can be securely stored and transported in both the readout unit and the holding mechanisms. When the loggers are next used, they can be reconfigured right away, without needing to be removed from the readout unit beforehand and reinserted. This saves time and optimizes the validation process.

Efficient

Up to eight testo 190 data loggers can be configured and read out simultaneously in the cases.

Flexible

There is a small and a large version of the cases available.



Practical

After the measurement, the data loggers can remain secured in the programming and readout unit.

Convenient

The large case offers holding mechanisms for up to 32 loggers and 25 batteries, thus enabling convenient transport.

Secure

The loggers are reliably protected against damage in both cases by a special case design.



Surprisingly easy: The testo 190 CFR software.

The 21 CFR Part 11-compliant testo 190 CFR software provides you with effective support in your validation and qualification tasks. From fast simultaneous configuration and readout of up to eight data loggers, via comprehensive data analysis to easy, audit-relevant reporting.

The clear software structure guides you intuitively through the process step by step and helps you at critical points in the input process through warnings. The range of functions was deliberately restricted to the features which you really need for successful validation.

You will be impressed by these advantages:



Full, audit-relevant documentation with just the click of a mouse (1-click report).



Whether you are an expert or a novice: testo 190 CFR software provides every user with optimum support during the measuring process.



Fast and reliable overview of the measurement results.



No data export to other systems needed (e.g. to Excel).



Readout of up to 254 loggers is possible in one validation process.



Tailor-made service: So you can concentrate on what's important.

You can rely on Testo's experience and expertise for all services relating to the validation of your sterilization and freeze-drying processes. Our experts will implement your specifications based on requirements and, at the same time, cost-sensitively.

Together with you, we will individually determine the exact scope of the services required. Just give us a call or send us an e-mail. Together, we will find the right solution for your requirement.

Calibration of the testo 190 data loggers in accredited laboratories

- Reliable measurement results thanks to highly accurate calibration of your data loggers – traceable to national or international standards
- Depending on your individual needs, you get accredited DAkkS or ISO calibrations
- All calibration certificates are available to you in PDF format in our calibration system.

Calibration of your stationary systems

- We carry out flexible calibration which is independent of the manufacturer, e.g. of your autoclaves and freeze-drying systems, conveniently at your business premises – allowing your systems to stay permanently available





Ordering information.

testo 190 system components	Order no.
Data loggers	
testo 190-T1 , CFR temperature data logger, including large battery and adapter for testo 190 programming and readout unit.	0572 1901
testo 190-T2 , CFR temperature data logger, including large battery and adapter for testo 190 programming and readout unit.	0572 1902
testo 190-T3 , CFR temperature data logger, including large battery and adapter for testo 190 programming and readout unit.	0572 1903
testo 190-T4 , CFR temperature data logger, including large battery, adapter for testo 190 programming and readout unit and thread extension.	0572 1904
testo 190-P1 , CFR pressure data logger, including large battery.	0572 1900
Software	
testo 190 CFR software , 21 CFR Part 11-compliant software for configuration and readout of testo 190 CFR data loggers. System requirements: Windows 7 (32/64 bit), Windows 8, Windows 10.	0554 1901
Case	
testo 190 small case , case for transport, storage, configuration and readout of testo 190 CFR data loggers. Including USBcable and 1 programming and readout unit for a maximum of 8 data loggers. Dimensions: 340 x 265 x 60 mm.	0516 1901
testo 190 large case , case for transport, storage, configuration and readout of testo 190 CFR data loggers. Including USBcable and 1 programming and readout unit for a maximum of 8 data loggers. With storage space for up to 32 data loggers, 25 batteries and additional accessories. Dimensions: 518 x 398 x 155 mm.	0516 1902

testo 190 accessories	Order no.
testo 190 small battery, PEEK coated. For the power supply of all testo 190 models. Application range: -20 to +140°C.	0515 1900
testo 190 large battery, PEEK coated. For the power supply of all testo 190 models. Application range: -50 to +140°C.	0515 1901
testo 190 freeze-drying probe holder (puck) for more precise measurement of surface temperature with the testo 190-T3 and testo 190-T4.	0554 1907
Retaining clamps (5 off), to secure the loggers (testo 190-T1/-T2/-T3/-T4) in the application areas (e.g. in autoclaves).	0554 0297
Distance adapters short to secure the testo 190-T4 data logger in the programming and readout unit.	0554 0298
Distance adapters long to secure the testo 190-T1, testo 190-T2 and testo 190-T3 data loggers in the programming and readout unit.	0554 0299



Small or large battery



Freeze-drying probe holder



Retaining clamp



Distance adapter short or long

testo 190 calibration certificates	Order no.
ISO temperature calibration certificate (testo 190-T1/-T2/-T3/-T4), calibration points -50°C; 0°C; +90°C; +121°C; +140°C	0520 0141
DAkKS temperature calibration certificate (testo 190-T1/-T2/-T3/-T4), calibration points -50°C; 0°C; +90°C; +121°C; +140°C	0520 0281
ISO pressure calibration certificate (testo 190-P1), calibration points 200 / 1400 / 2600 / 3800 / 5000 mbar	0520 0025
DAkKS pressure calibration certificate (testo 190-P1), calibration points 200 / 800 / 1400 / 2000 / 2600 / 3200 / 3800 / 4400 / 5000 mbar	0520 0215

Testo: High-tech from the Black Forest.



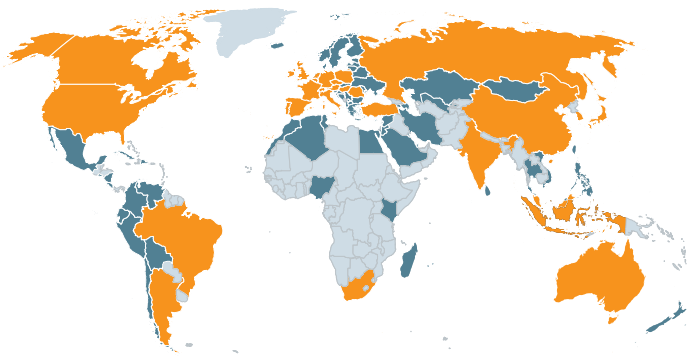
For 60 years, Testo has stood for innovative measuring solutions made in Germany. As a world market leader in portable measuring technology, we help more than 650,000 customers to save both time and resources, to protect the environment and human health, and to improve the quality of goods and services. These measurement solutions are complemented by the quality assurance services of our subsidiary company Testo Industrial Services GmbH.

Their core services include calibration, qualification and validation, which are indispensable for the achievement of impeccable quality in the pharmaceutical industry and in GxP-regulated environments. Our services are as individual as your products: we support and accompany you in your tasks and projects for the fulfilment of GxP compliance – from conception to realization.

With roots in the Black Forest.

At home all over the world.

Our headquarters are in Lenzkirch in the Black Forest. However, Testo has for many years been a constantly growing global concern, now represented on all continents by more than 33 subsidiary companies and over 80 distribution partners. Around 3,000 employees research, develop, produce and market for the company with passion and expertise all over the world.



■ Subsidiary companies
■ Agencies

