

Be sure. **testo**



Food quality assurance and adherence to HACCP regulations in **gastronomy.**

Food measurement technology from Testo
specially for gastronomy and restaurants.

Food safety and HACCP.

Food is a matter of trust. Its quality and safety is taken for granted by guests and customers. This presents an enormous challenge to restaurateurs: They must adhere to numerous limit values and norms, and at the same time manage their operational procedures economically. In this context, the HACCP concept takes on special significance.

What is HACCP?

The abbreviation HACCP stands for Hazard Analysis and Critical Control Points. The HACCP concept is a complement to basic hygiene measures with the objective of minimizing food-related illnesses. It is based on the Codex Alimentarius and places self-monitoring in a central position.

The HACCP concept covers these 7 points:

1. Determination of the relevant hazards (hazard analysis)
2. Identification of critical control points
3. Definition of limit values (only for Critical Control Points)
4. Definition and implementation of efficient monitoring
5. Specification of corrective measures
6. Production of documents and records (documentation)
7. Definition of regular verification processes (self-monitoring obligation)

What are critical control points (CCPs)?

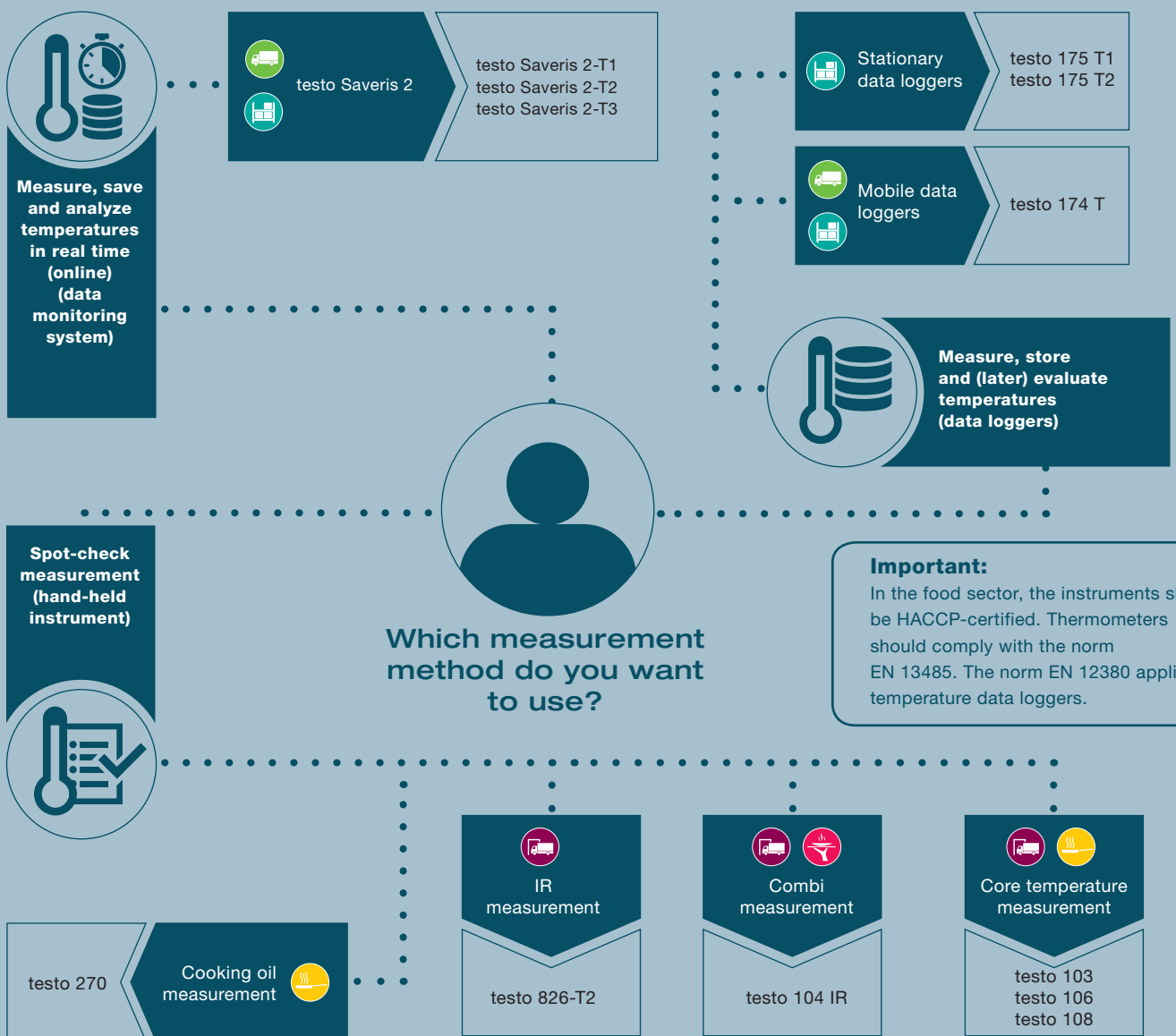
Critical control points (CCPs) are points at which there is a considerable probability of a relevant risk to the health of your guests exist if they are omitted. These can be heating steps, sufficient refrigeration and monitoring of foreign bodies, for example.



The right measurement technology for HACCP.

The targeted use of measurement technology helps you to ensure impeccable food quality, taking the HACCP regulations into account. For instance, an automated climate monitoring reduces the manual effort and increases security thanks to versatile alarm functions. A combi thermometer can prove to be a real time-saving miracle in Incoming Goods.

A fast orientation of the different measurement methods and suitable instruments is provided by this infographic. It allows you to find the perfect measuring instrument for your business's requirements in less time.



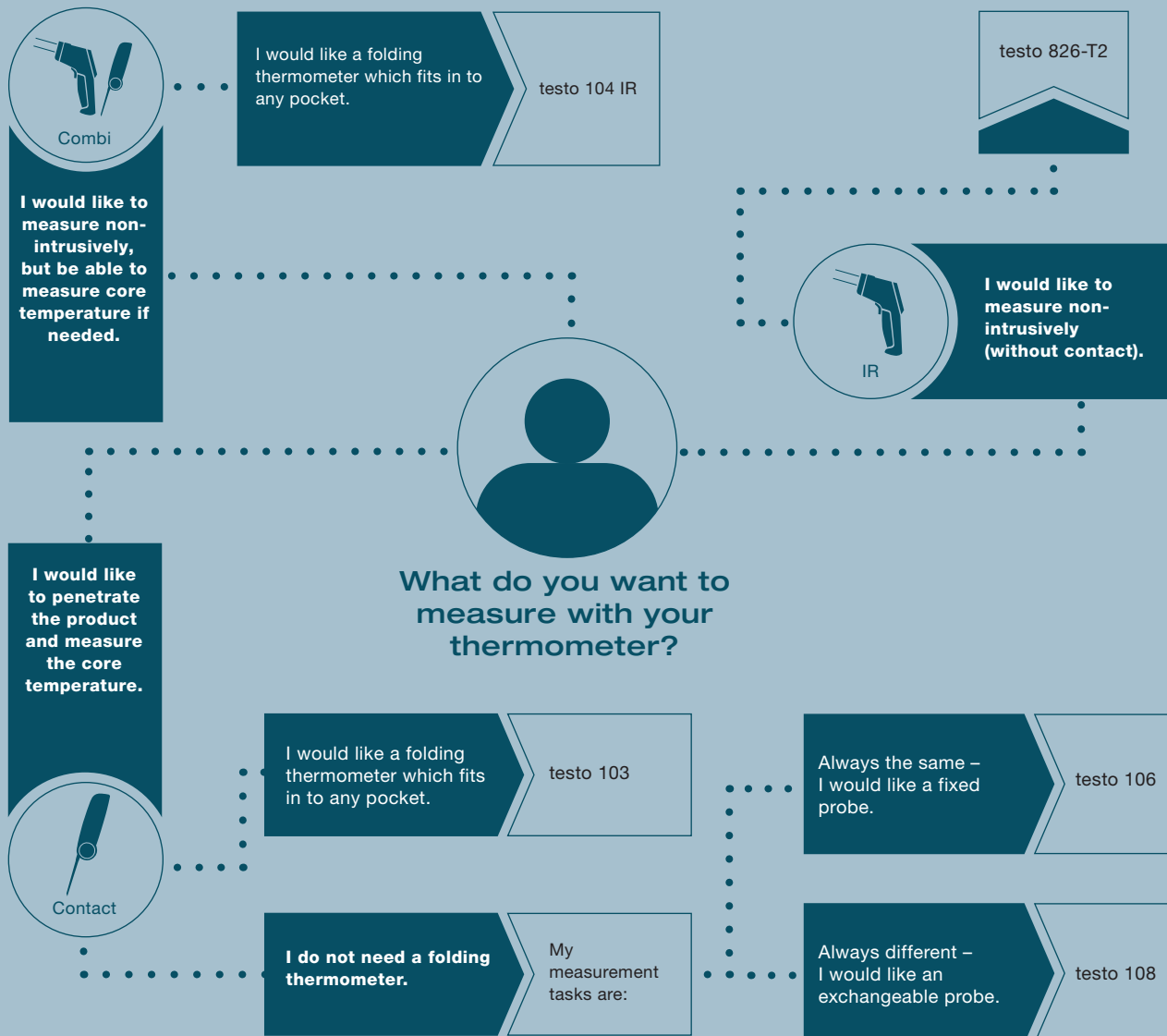
Which hand-held measuring instrument is right for me?

Spot-check measurement with hand-held measuring instruments plays an important role particularly in Incoming Goods and during food preparation. If you are looking for a portable measuring instrument for taking spot-check measurements, you should pay attention to the following questions:

- Can you penetrate the goods, or does the measurement have to be taken non-intrusively? Penetration measurement determines the core temperature and is therefore more accurate – but it damages the packaging.

- Are you out and about a lot with the thermometer in your pocket? Then a folding thermometer makes sure you do not injure yourself with the measurement tip.
- Do you measure in foods with different consistencies (e.g. frozen goods, meat, cheese, liquids)? Then a thermometer with exchangeable probes is right for you.

We have summarized all important factors for you in the graphic.



Record core temperature precisely with penetration thermometers.







Penetration thermometers are indispensable for determining the core temperatures of foods. Measurement of core temperature is important not only in Incoming Goods. In the HACCP concept, the sufficient heating of foods is also a critical control point which needs to be monitored and documented without interruption.

The penetration probe is either fixed permanently to the instrument or, in the case of changing measurement tasks, can be externally attached. This way even measurements in frozen goods can be carried out effortlessly.



Products in comparison

General data

Intro text	Folding thermometer, length 11 cm, small, practical, handy, protection class IP55, incl. batteries	Food core thermometer incl. probe protection cap, batteries and calibration protocol	Waterproof temperature measuring instrument (Type T and Type K), incl. thermocouple probe Type T, softcase and calibration protocol
Order number	0560 0103	0560 1063	0563 1080
Process steps	 	 	 

Technical data

Measurement in seconds	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Exchangeable probes	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Easy-to-read display	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Splash-proof	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Folding penetration probe	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Auto-Hold	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Measurement parameter	°C, °F	°C	°C, °F
Measuring range	-30 to +220 °C	-50 to +275 °C	-50 to +300 °C
Accuracy	±0.5 °C (-30 to +99.9 °C)	±0.5 °C (-30 to +99.9 °C)	±0.5 °C (-30 to +99.9 °C)
Resolution	0.1 °C	0.1 °C	0.1 °C
Dimensions	189 x 35 x 19 mm (probe folded out)	220 x 35 x 20 mm	140 x 60 x 24.5 mm (without probe)
Weight	49 g	80 g	150 g without TopSafe case
Battery life	300 h (typically at 25 °C)	350 h	2500 h (typically at 23 °C)
Protection class	IP 55	IP 67	IP 67



Incoming goods






Preparation

Non-contact and non-intrusive measurement with IR and combi thermometers.

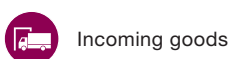
In Incoming Goods, non-contact infrared measurement is used especially often, as it provides fast results without damaging the product or the packaging. However, please note: An infrared thermometer measures only the surface temperature. In order to record the core temperature of foods, penetration measurements are necessary.

For this reason, the use of a combi instrument such as testo 104-IR is convenient and saves time, since it gives you both measurement methods – precise penetration measurement and fast IR measurement – in one instrument. It is also handy and can be safely stowed in any pocket.

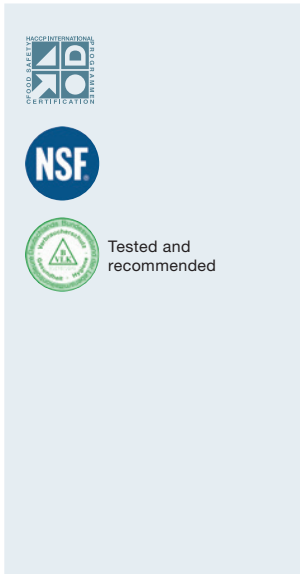


General data		
Intro text	Infrared/penetration thermometer, waterproof, folding, incl. batteries and calibration protocol	Infrared thermometer with 1-point laser measurement spot marker, alarm function, incl. TopSafe and wall bracket/belt loop
Order number	0560 1040	0563 8282
Process steps	 	

Technical data		
Non-contact measurement of surface temperature	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Penetration measurement possible	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Hold function and min./max. value display	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Two adjustable alarm limit values	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Emission factor configurable	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Measurement spot marker	2-point laser	1-point laser
Measurement parameter	°C, °F, °R	°C
Measuring range (NTC, IR)	-50 to +250 °C / -30 to +250 °C	-50 to +300 °C
Accuracy (NTC, IR)	±0.5 °C (-30.0 to +99.9 °C)	±1.5 °C (-20 to +100 °C)
Resolution (NTC, IR)	0.1 °C	0.1 °C
Optics	10:1 +	6:1
Laser	2-point laser	1-point laser
Spectral range	8 to 14 µm	8 to 14 µm
Emissivity	0.1 to 1.0 adjustable	0.1 to 1.0 adjustable
Dimensions	281 x 48 x 21 mm (probe folded out)	148 x 35 x 20 mm
Weight	197 g (incl. battery)	80 g (incl. battery)
Battery life	10 h (at +25 °C)	100 h
IP protection class	IP 65	IP 67 with TopSafe



Measure oil quality according to the traffic-light principle with the cooking oil tester.



testo 270

General data	
Intro text	Cooking oil tester testo 270 in a case, with reference oil, short instructions, full instruction manual and training card, as well as calibration protocol and batteries
Order number	0563 2750
Process steps	

Technical data	
Ergonomic design and robust construction	✓
Washable under running water (IP65)	✓
Clear alarms thanks to innovative traffic-light display	✓
Calibration and adjustment can be carried out by the user	✓
Measurement parameter	°C / TPM
Measuring range (TPM, °C)	0.0 to 40.0 % TPM +40 to +200 °C
Accuracy (TPM, °C)	±2 % TPM (+40 to +190 °C) ±1.5 °C
Resolution (TPM, °C)	0.5 % TPM (+40 to +190 °C) 0.1 °C
Response time	approx. 30 sec
Cooking oil operating temperature	+40 to +200 °C
Battery life	approx. 25 h continuous operation (corresponds to approx. 500 measurements)
Protection class	IP 65

Cooking oil in the deep fryer has a direct impact on all kinds of factors: Spent cooking oil has a negative effect on the flavour and digestibility of deep-fried food. Changing the cooking oil too soon, however, leads to higher costs. How can you ensure the quality of the cooking oil – and even save oil at the same time?

	Fish/meat	Potatoes
Frying hours/year	1500 h	1500 h
Cooking oil/year	1125 kg	900 kg
Savings/year	225 kg	180 kg
Savings	418.50 €	334.80 €
Cooking oil requirement per fryer:	15 kg	
Cooking oil costs per kg :	1.86 €	

The cooking oil tester testo 270 offers the most convenient solution for monitoring cooking oil consumption. It works in the simplest possible way: The sensor of the testo 270 is immersed in the oil, and in only a few seconds, measures the amount of so-called “Total Polar Materials” (TPM) in the oil. If the oil is too old, it shows an increased TPM value.

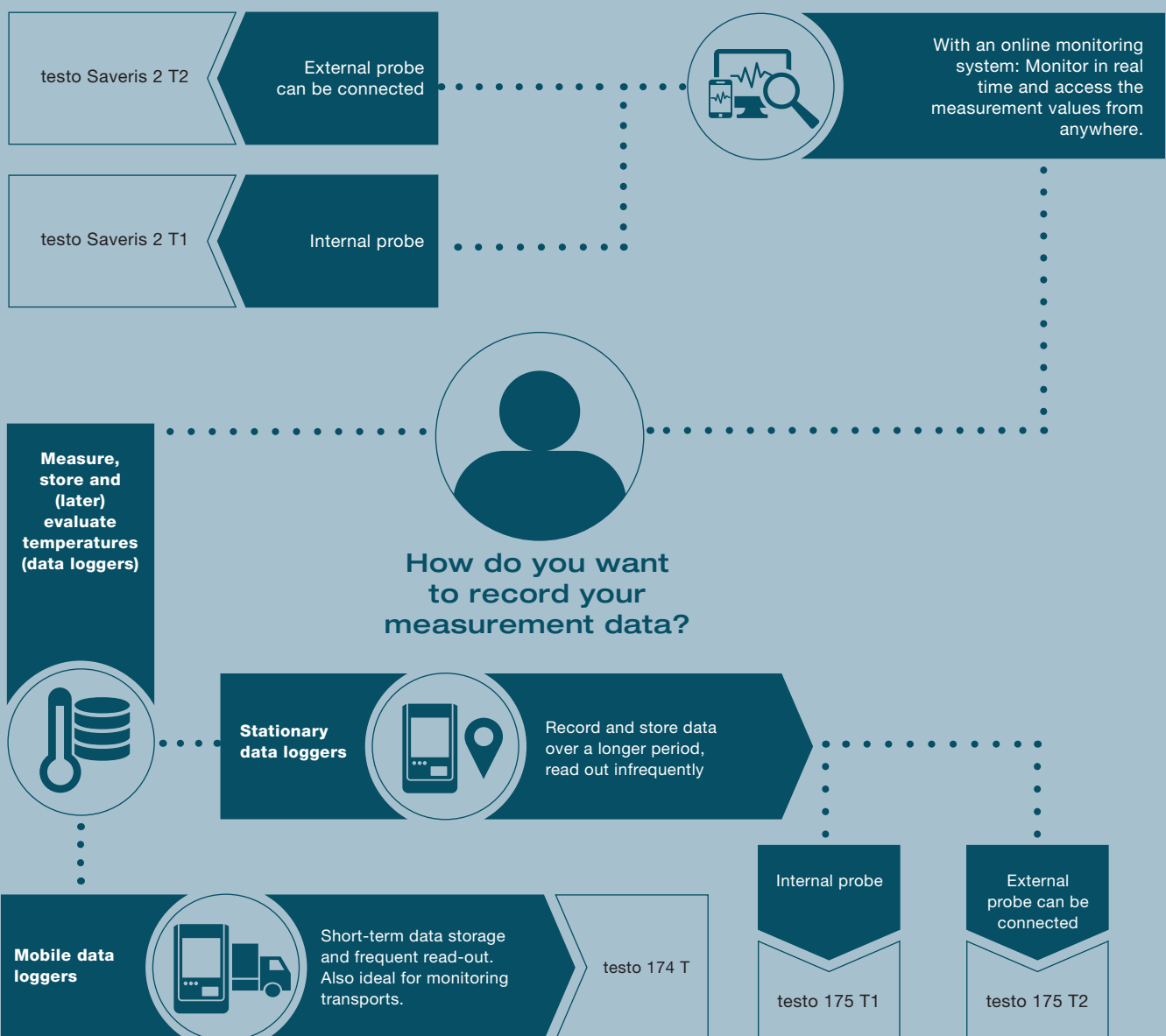
TPM component in cooking oil	Classification of fat ageing
< 1 to 14 % TPM	Fresh cooking fat
14 to 18 % TPM	Slightly used
18 to 22 % TPM	Used, but still OK
22 to 24 % TPM	Heavily used, change the fat
> 24 % TPM	Spent cooking fat

Which logger supports my work best?

Data loggers are used everywhere where measurement values are to be recorded regularly or over a longer period. In refrigerated rooms and storerooms, data loggers ensure adherence to the prescribed temperatures. Depending on the design, they store up to a million measurement values which can be read out via a PC. Crucial for use in the food sector is a robust, splash-proof construction so the loggers do not need to be de-installed before cleaning the rooms.

The use of an automated data monitoring system is even more convenient. It is worthwhile especially when several rooms or refrigeration units are to be monitored – and with its alarm function, provides a decisive additional level of security.

The overview graphic shows you which type of logger suits your requirements. You can find more detailed information on the individual loggers on the following pages.



Measure temperatures continuously with data loggers.





Data loggers which monitor the ambient conditions in refrigerated rooms and storerooms are of permanently installed. As a rule, they remain in position over a period of one to two years. In addition to a robust housing which can withstand cleaning with a water jet, a long battery life and a large measurement value store are important.

Depending on your requirements, you have the choice between data loggers of the compact and the premium class. The former are suitable above all for flexible measurement and frequent readout, while the premium models record and store measurement values for you for up to three years.















Products in comparison

General data

	testo 174 T	testo 175 T1	testo 175 T2
	1-channel mini data logger, incl. wall bracket, battery (2 x CR 2032 Lithium) and calibration protocol	1-channel temperature data logger with internal sensor (NTC), incl. wall bracket, lock, batteries and calibration protocol	2-channel temperature data logger with internal and external (NTC) sensor connection, incl. wall bracket, lock, batteries and calibration protocol
Order number	0572 1560	0572 1751	0572 1752
Process steps	 		

Technical data

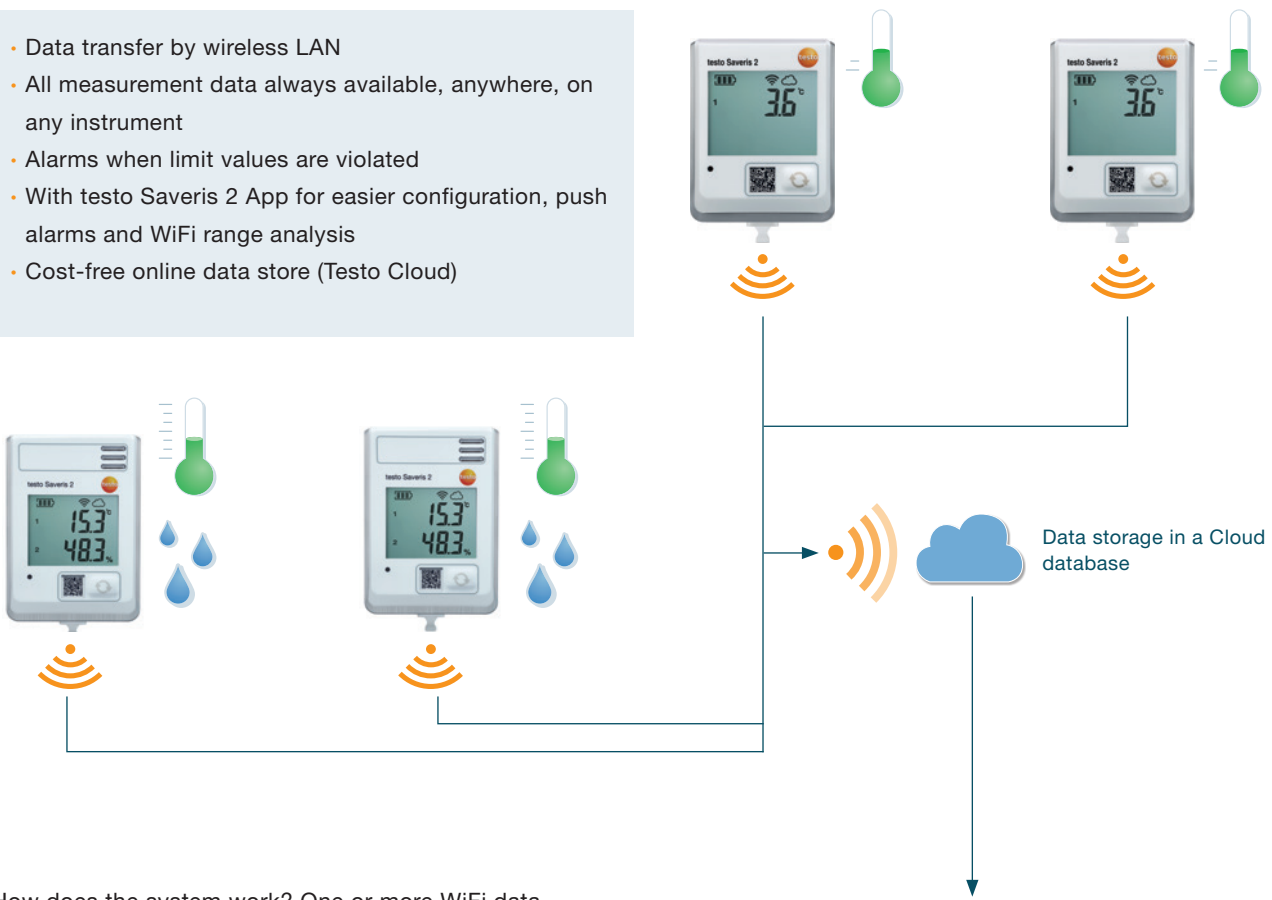
Easy-to-read display			
Long battery life			
Large measurement data memory			
Mobile readout/printout on site			
Channels	1 x internal	1 x internal	1 x internal, 1 x external
Measuring range	-30 to 70 °C	-35 to +55 °C	-35 to +55 °C int. -40 to +120 °C ext.
Accuracy	±0.5 °C (-30 to +70 °C)	±0.5 °C (-35 to +55 °C)	±0.5 °C (-35 to +55 °C) int. ±0.3 °C (-40 to +120 °C) ext.
Resolution	0.1 °C	0.1 °C	0.1 °C
Measuring cycle	1 min to 24 h	10 sec to 24 h	10 sec to 24 h
Memory capacity	16,000 readings	1 mio. measurement values	1 mio. measurement values
Interfaces	USB hub	Mini USB, SD card slot	Mini USB, SD card slot
Dimensions	60 x 38 x 18.5 mm	89 x 53 x 27 mm	89 x 53 x 27 mm
Weight	35 g	130 g	130 g
Battery life (15 min meas. rate, +25 °C)	500 days	3 years	3 years
Protection class	IP 65	IP 65	IP 65



More safety for your food around the clock.

With the wireless data logger system testo Saveris 2, you monitor the temperatures in storerooms, sales counters and refrigeration units automatically – and receive alarms when a problem occurs.

- Data transfer by wireless LAN
- All measurement data always available, anywhere, on any instrument
- Alarms when limit values are violated
- With testo Saveris 2 App for easier configuration, push alarms and WiFi range analysis
- Cost-free online data store (Testo Cloud)



How does the system work? One or more WiFi data loggers (which you are free to select yourself) record the measurement data automatically and transmit them by wireless LAN to an online data store, the Testo Cloud. Here the data are not only securely stored, but also documented; this eliminates bothersome manual reading out. In addition to this, the ambient conditions are not only recorded, as with the data loggers, but also monitored. Via the Cloud access, you have your measurement values in view on a smartphone, tablet or PC at all times, and receive alarms when critical values are reached. Anytime, anywhere.

Find the right **testo Saveris 2 WiFi data logger.**

testo Saveris 2 is a flexible wireless LAN data logger system which you assemble according to your needs, and can very easily integrate into your existing network. You can select from a range of temperature and humidity loggers and an

even larger probe portfolio. These WiFi data loggers either have integrated sensors for temperature measurement, or external probes can be connected.









Products in comparison

testo Saveris 2-T1

testo Saveris 2-T2

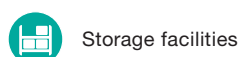
testo Saveris 2-T3

General data

Intro text	WiFi data logger (wireless LAN) with display and internal NTC temperature sensor, incl. USB cable, wall bracket, batteries and calibration certificate	WiFi data logger (wireless LAN) with display for measuring temperature, two connections for external NTC temperature probes or door contacts, incl. USB cable, wall bracket, batteries and calibration certificate	WiFi data logger (wireless LAN) with display for measuring temperature, two connections for external TC temperature probes (Types K, T, J), incl. USB cable, wall bracket, batteries and calibration certificate
Order number	0572 2031	0572 2032	0572 2033
Process steps	 	 	 

Technical data

Data transfer by wireless LAN	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Call up and evaluate temperature data at any time online	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Alarms by e-mail or SMS (optional)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
External probe can be connected	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Cost-free online data store (Testo Cloud)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Channels	1 x NTC internal	2 x NTC or door contact external	2 x thermocouple type K / J / T external
Measurement parameter	°C	°C	°C
Measuring range	-30 to +50 °C	-50 to +150 °C	K: -195 to +1350 °C J: -100 to +750 °C T: -200 to +400 °C
Accuracy	±0.5 °C	±0.3 °C	±(0.5 + 0.5 % of m.v.) °C
Resolution	0.1 °C	0.1 °C	0.1 °C
Measuring cycle	Depends on the Cloud licence / Basic: 15 min to 24 h / Advanced: 1 min to 24 h		
Transmission interval	1 min to 24 h (15 minutes default)		
Battery life	24 months		
IP protection class	IP 65	IP 65	IP 54



Overview of order details.

Product description	Order no.
testo 103 Penetration thermometer	0560 0103
testo 106 Food thermometer	0560 1063
testo 108 Temperature measuring instrument	0563 1080
testo 104-IR Penetration infrared thermometer	0560 1040
testo 826-T2 Infrared thermometer	0563 8282
testo 270 Cooking oil tester	0563 2750

Product description	Order no.
testo 174 T Mini data logger for temperature	0572 1560
testo 175 T1 Temperature data logger	0572 1751
testo 175 T2 Temperature data logger	0572 1752
testo Saveris 2-T1 WiFi data logger with display and integrated NTC temperature probe	0572 2031
testo Saveris 2-T2 WiFi data logger with display and 2 connections for NTC temperature probes	0572 2032
testo Saveris 2-T3 WiFi data logger with display and 2 connections for TC temperature probes	0572 2033

