Non contact surface temperature measurement

testo 831*

The measurement reliability of the newly developed testo 831 has been optimized. Thanks to the 30:1 optics, the measurement spot diameter is only 3.6 cm at a distance of 1 m. This means that even small objects can be measured at a distance. Measurement errors are avoided due to a the 2-point laser marking of the measurement spot diameter. At two measurements per second, the testo 831 is so fast, that scans on palettes or refrigerated shelves can be carried out in seconds.

- A measurement distance of 1 m results in a measurement point of 3.6 cm, ideal for scanning refrigerated products or deep-frozen goods in refrigerated displays or in Incoming Goods.
- 2-point laser shows the exact measurement spot.
- Optical and audible alarm when upper or lower limit values are exceeded.

* Available from November 2006

2-point laser shows the exact measurement spot.

We will provide further information concerning food hygiene and measurement technology on request

- ☐ Information sheet on new EU legislation
- ☐ Measurement technology in the food sector
- ☐ pH field guide
- ☐ Infrared field guide
- ☐ Poster temperature limit values

Technical data	
Probe type	Infrared
Measurement spot marking	2-point laser
Optics	30:1 (0.6 to 0.8 m)
Accuracy ±1 digit	±1.5 °C or 1.5% of m.v.. -20 to +210 °C) ±2 °C or 2% of m.v.. (-30 °C to -20 °C)
Resolution	0.5 °C
Degree of emissivity	0.2 to 1.0
Storage temperature.	-40 to +70 °C
Operating temperature	-20 to +50 °C
Battery type	9 V Block
Battery life	15 h
Dimensions	190 x 75 x 38 mm
Weight	200 g

Monitoring Measuring Instruments for Meat Processing

Measurement technology for monitoring product quality

Measurement technology in the meat processing sector

Quality and monitoring

Good raw materials and care in the handling of ingredients, spices and additives have always been imperative in the meat processing sector. It has been well-known for a long time that meat and meat products are sensitive to temperature, and this fact is accomodated by an uninterrupted cold chain from the raw material to the finished product.

In order to standardize this process, many countries have laws and guidelines for measuring temperature. The European Union in particular, has created a standard with a uniform revision of its the food law (EU 852/2004). The central element of these reglations is the food operator, i.e. any person who processes food and/or puts it into circulation. Measuring and monitoring temperature limit values is no longer sufficient, the values must be documented and archived. Hygiene training for staff is required, as is the traceability of foodstuffs in circulation.

The central measurement sites Incoming Goods, production, storage and transport

For Incoming Goods and transport, portable measuring instruments are generally used. Their probes can penetrate into a product (core temperature measurement), or be inserted between two products, e.g. for measuring the temperature of deep-frozen goods without damaging them. Special probes allow core measurements to be made even in deep-frozen goods, without having to drill a hole (frozen food probe).

For the monitoring of storage and production rooms as well as truck beds, measurement data stores (so-called data loggers) are generally used. They regularly and independently record temperature values at certain intervals (e.g. 15 minutes), which can then later be read out by the user. Because of the large storage capacity, a readout every two to three months is sufficient. The data are not lost even when the battery is empty. The data which have been read out can be presented and printed out on a computer, and then conveniently archived on the PC. The use of data loggers makes regular measurements with a portable instrument superfluous, thus lowering personnel costs.

testo 105 with frozen food probe, core temperature measurement without pre-drilling

Standard measurement tip 100 mm Ø 3.5 mm   Frozen food tip 90 mm Ø 8 mm

Long measurement tip 200 mm Ø 3.5 mm

Core temperature measurement during smoking, wireless, measurement data transfer by radio

Spill-proof storage gel

pH buffer solutions for the regular calibration of the pH measuring instruments

Measurement technology in the meat processing sector

"Quality control" of ambient conditions

Air humidity is a particular concern in the storage of raw materials and spices. Portable measuring instruments and data loggers are available for measuring not only temperature, but also humidity. The data loggers continuously and simultaneously record the air humidity and the room temperature, and store them permanently in the memory. "Quality control" of the ambient conditions in the room are thus easily possible.

The pH value as an indicator of quality

The pH value influences the properties of the meat and of the products made from it, especially the water-binding capability, the flavour, the colour, the tenderness and the storage life.

The pH value in the living animal is approximately 7.1. After slaughter, it decreases for 24 hours, then slowly increases as the meat matures. Three quality levels are distinguished, depending on the decrease within the first hour after slaughter.:
· DFD meat (dark, firm, dry)
· Normal meat
· PSE meat (pale, soft, exudative)

The pH value is thus an important indicator of the quality and the maturation process. Modern pH instruments are easy to operate and have a built-in temperature compensation (the pH value is dependent on the temperature). testo 205 is a pH measuring instrument specially developed for the meat processing sector, which can be inserted into the meat without pre-drilling, thanks to its measurement tip. The automatic recognition of the end value freezes the reading in the display as soon as it is stable. The gel storage cap delivered with the instrument keeps the pH probe moist (otherwise danger of drying out), and simultaneously avoids the spillage of the liquids which are normally used. pH measuring instruments must be regularly calibrated by the user. Special buffer solutions are available for this purpose. This adjustment process is to a great extent automized, and can also be carried out by non-experts.
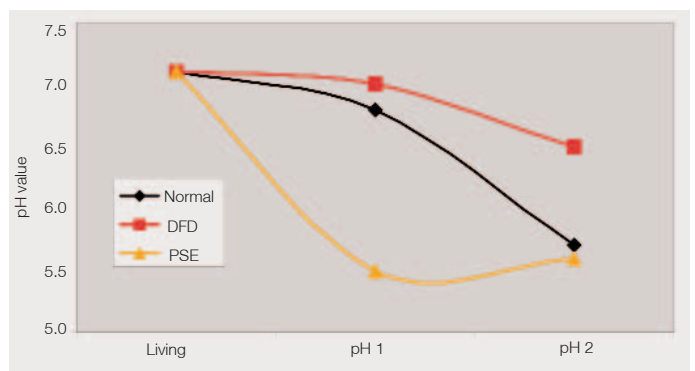

Registering temperature fluctuations, e.g in the storage of meat - for Quality Assurance purposes.

The pH value is an important parameter in meat processing

Three quality levels are differentiated by the speed of the pH decrease within one hour.

testo 205, the pH probe is kept moist and spillage avoided thanks to the gel storage cap included in delivery.

Monitoring temperature - small and handy

testo 174

The mini data logger testo 174 unobtrusively and continuously monitors temperature fluctuations. The display shows the current measurement value:
Stored minimum and maximum value, limit values and remaining battery life can be called up.

- Accurate, exactly timed temperature recording with up to 3900 measurement values
- Alarm display when user-defined maximum/minimum values are exceeded
- Software for data readout, data analysis and parameter setting (option)
- Data security even when the battery is spent

Theft-proof installation on site

Data transfer to PC or laptop via interface (option)

Monitoring foodstuffs, e.g. in Incoming Goods, storage and delivery

testo 174

Mini temperature data logger, 1 channel, incl. wall holder lock and battery

Order no. 0563 1741

Technical data	
Measuring range	-30 to +70 °C
Measurement value store	3900 measurement values
Meas. rate	1 min to 4 h (selectable)
Battery life	500 days (typical)
Analysis software	MS Windows 95b / 98 / ME / NT4-Sp4 / 2000 / XP
Dimensions	55 x 35 x 14 mm
Weight	24 g

testo 174, USB starter set

testo 174 mini temperature logger, 1 channel, ComSoft 3 Basic, wall holder, lock, interface USB incl. PC connection cable, battery

Order no. 0563 1743

Ordering data for accessories	Order no.
Transport case for up to 10 data loggers testo 174 and accessories	0516 1740
Lithium battery, type CR 2032	0515 0028
ISO calibration certificate temperature, temperature data logger, calibration points -18°C, +60°C	0520 0443
USB interface, suitable for data logger testo 174, incl. PC connection cable	0554 1739

Documenting temperature - fast and easy

testo 175-T1

The temperature data logger guarantees uninterrupted documentation with up to 7800 measurement values.

- Fast overview of:current measurement value, last value stored, min./max. values, number of limit value exceedances

- Data security, even when the battery is empty

- On site: Collect data and transfer to a PC for analysis - with testo 580

Data documentation on site with fast printer testo 575 (optional)

testo 175-T1

Internal °C
Temperature data logger, 1 channel, with internal sensor, wall holder and calibration protocol

Order no. 0563 1754

Registering temperature fluctuations, e.g in the storage of meat - for Quality Assurance purposes.

Technical data		
Internal channels	1	
Probe type	NTC	
Measuring range	-35 to +70 °C	
Accuracy ±1 digit	±0.5 °C (-20 to +70 °C)	±1 °C (-35 to -20.1 °C)
Resolution	0.1 °C (-20 to +70 °C)	0.3 °C (-35 to -20.1 °C)
Memory	7800	Meas. rate 10 sec to 24 h
Battery life	2.5 at measurement rate 15 min (-10 to +50 °C)	
Analysis software	MS Windows 95b / 98 / ME / NT4-Sp4 / 2000 / XP	
Dimensions	82 x 52 x 30 mm	
Weight	90 g	Protection class IP68

Recommended starter set	
Temperature data logger, 1 channel, with internal sensor, waal holder and calibration protocol	0563 1754
Lock for the wall holder of data logger testo 175/177	0554 1755
Set ComSoft 3 Basic with USB interface, basic software with diagram and tabular presentation, incl. desktop holder, PC connection cable	0554 1766

Robust one-hand thermometer - with exchangeable measurement tips

testo 105

The robust food thermometer with exchangeable measurement tips for monitoring measurements in slaughterhouses, refrigerated rooms Incoming Goods or production.

- 2 user-defined limit values
- Built-in display illumination
- 2-line display
- Waterproof (IP 65) and robust

testo 105	
One-hand thermometer with standard measurement tip, belt/wall holder and betteries	
Order no. 0563 1051	

Technical data	
Sensor type	NTC
Measuring range	-50 to +275 °C
Accuracy ±1 digit	±0.5 °C (-20 to +100 °C) ±1 °C (-50 to -20.1 °C) ±1 % (+100.1 to +275 °C)
Resolution	0.1 °C
Storage temp.	-40 to +70 °C
Operating temp.	-20 to +50 °C
Protection class	IP65
Dimensions	145 x 38 x 195 mm
Weight	139 g

Ø 3.5 mm Ø 8 mm

1

2 Ø 3.5 mm

3

1 Standard measurement tip 100 mm
2 Frozen food tip 90 mm
3 Measurement tip long 200 mm

EN 13485
testo 105 ACCORDING TO
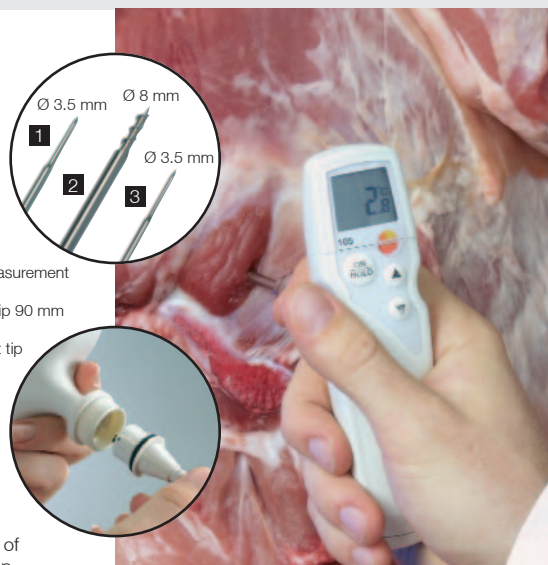
Easy exchange of measurement tip

Recording core temperature before further processing

Order data accessories	
Button cell battery Type LR 44, 1.5 Volt (4 off) Order no. 0515 0032	
ISO calibration certificate temperature, fo air/penetration probe, calibration points -18 °C; 0 °C Order no. 0520 0041	

testo 105 with frozen food measurement tip
testo 105 with frozen food measurement tip, belt/wall holder and batteries
Order no. 0563 1054

Complete case
One-hand thermometer with standard measurement tip, frozen food tip, long tip and belt/wall holder in aluminium case
Order no. 0563 1052

One-hand pH/°C measuring instrument - robust and maintenance-free

testo 205

A robust food penetration pH/°C measuring instrument with automatic temperature compensation. The robust penetration measurement tip is exchangeable and insensitive to dirt thanks to its hole diaphragm.

- Combined penetration tip with temperature probe
- Measurement tip can be exchanged by user
- Maintenance-free gel-electrolyte
- Built-in display illumination
- 2-line display
- Automatic recognition of final value
- 1-, 2- or 3-point calibration possible

pH tip encased in break-proof plastic

Constant quality monitoring during maturation

Instrument set
One-hand pH/°C measuring instrument with penetration probe, storage cap, belt/wall holder
Order no. 0563 2051

Starter set
One-hand pH/°C measuring instrument with penetration probe, storage cap, 2 calibration bottles 250 ml each (pH 4+7) belt/wall holder and aluminium case
Order no. 0563 2052

Technical data		
Measurement sensor	pH-electrode	NTC
Measuring range	0 to 14 pH	0 to 60 °C (short-term to +80 °C max. 5 min)
Accuracy ±1 digit	±0.02 pH	±0.4 °C
Resolution	0.01 pH	0.1 °C
Storage temp.	-20 to +70 °C	Oper. temp. 0 to +50 °C

Ordering data	
Spare pH probe for testo 205, icl. gel storage cap	0650 2051
Storage cap for testo 205 with KCL gel filling	0554 2051
Aluminium case for pH measuring instruments testo 205/206and accessories	0554 2069
pH buffer solution 4.01 in dosing bottle (250 ml), incl. DKD calibration certificate	0554 2061
pH buffer solution 7.00 in dosing bottle (250 ml), incl. DKD calibration certificate	0554 2063
pH buffer solution 10.01 in dosing bottle (250 ml), incl. DKD calibration certificate	0554 2065

testo 926 – fast, accurate all-round thermometer

testo 926

The fast, accurate all-round thermometer for the food sector. The optional protective case TopSafe makes it insensitive to dirt, and thus the ideal partner. For documentation purposes, measurement values can be printed on site with the Testo report printer. In addition to the wide selection of classical probes with a cable, an optional wireless probe can be used simultaneously.

- Fast probes for every application
- Wireless measurement with radio probes possible (option)
- Measurement data printout on site with the Testo report printer
- TopSafe, the indestructible protective case (option)
- testo 926 is tested and approved according to EN 13485
- Auto-Hold function automatically recognizes the final value of the measurement

EN 13485 ACCORDING TO

TopSafe, the robust and waterproof protective case

Monitoring temperature in a deep.freezer

Auto-Hold automatically recognizes the final value

Wireless core temprature measurement during smoking, measurement data transfer by radio

testo 926

testo 926, 1-channel food temperature measuring instrument TC Type T, audible alarm, connection of one optional wireless probe, incl. battery and calibration protocol

Order no. 0560 9261

testo 926, Starter set

testo 926, Starter set, 1-channel food measuring instrument TC Type T, incl. TopSafe, standard immersion/ penetration probe, battery and calibration protocol

Order no. 0563 9262

Printer and accessories	Order no.
Testo report printer with wireless IRDA and infrared interface, 1 rool of thermal paper and 4 AA batteries, for measurement data printout on site	0554 0547
Spare thermal paper for printer (6 rolls) , long-term legible measurement data documentation up to 10 years	0554 0568
External fast charger for 1-4 AA batteries, incl. 4 Ni-MH rechargeable batteries with single battery charging, charge monitoring display, incl. trickle charging, iintegrated discharge function, with integrated international plug, 100-240 V, 300 mA, 50/60 Hz	0554 0610

Further accessories	Order no.·
9V rechargeable battery for measuring instrument, instead of standard battery	0515 0025
Charger for 9V rechargeable battery 0515 0025	0554 0025
Lithium button cell battery Type CR 2032	0515 0028

Transport and protection	Order no.·
TopSafe, protects from dirt and impact	0516 0220
Transport bag for measuring instrument and probes	0516 0210
Transport case for measuring instrument, 3 probes and accessories (430 x 310 x 85 mm)	0516 0200

Calibration certificates	Order no.·
ISO calibration certificate temperature for air/ penetration probes, calibration points -18 °C; 0 °C; +60 °C	0520 0001
ISO calibration certificate temperature for air/ penetration probes, calibration point -18 °C	0520 0061
ISO calibration certificate temperature for air/ penetration probes, calibration point 0 °C	0520 0062
ISO calibration certificate temperature for air/ penetration probes, calibration point +60 °C	0520 0063
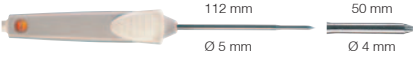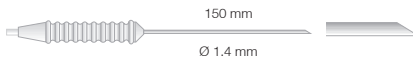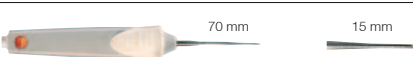
Technical data	
Probe type	Type T (Cu-CuNi) or NTC when using wireless immersion/penetration probes
Measuring range	-50 to +400 °C
Accuracy ±1 digit	±0.3 °C (-20 to +70 °C) ±(0.7 °C ±0.5% of m.v.) (remaining range)
Resolution	0.1 °C (-50 to +199.9 °C) 1 °C (remaining range)
Operating temp.	-20 to +50 °C
Storage temp.	-40 to +70 °C
Battery type	9V block, 6F22
Battery life	200 h (connected probe, backlight off) 45 h (wireless operation, backlight off) 68 h (connected probe, backlight always on) 33 h (wireless operation backlight always on)
Dimensions	182 x 64 x 40 mm
Weight	171 g

Suitable probes at a glance / technical data

Immersion/penetration probes	Illustration	Meas. range	Accuracy	t₉₉	Order no.
Waterproof standard immersion/penetration probe, TC Type T	112 mm / Ø 5 mm — 50 mm / Ø 4 mm	-50 to +350 °C	±0.2 °C (-20 to +70 °C) Class 1 (remaining range)	7 sec	0603 1293 **Connection:** Fixed cable
Waterproof ultra-fast needle probe for measurements without a visible penetration hole, TC Type T	150 mm / Ø 1.4 mm	-50 to +250 °C	±0.2 °C (-20 to +70 °C) Class 1 (remaining range)	2 sec	0628 0027 **Connection:** Fixed cable
Robust food penetration probe with special handle, reinforced cable(PUR), TC Type T	115 mm / Ø 5 mm — 30 mm / Ø 3.5 mm	-50 to +350 °C	±0.2 °C (-20 to +70 °C) Class 1 (remaining range)	6 sec	0603 2492 **Connection:** Fixed cable
Stainless steel food probe (IP67) with PUR cable, TC Type T	125 mm / Ø 4 mm — 30 mm / Ø 3.2 mm	-50 to +350 °C	±0.2 °C (-20 to +70 °C) Class 1 (remaining range)	7 sec	0603 2192 **Connection:** Fixed cable
Waterproof precision immersion/penetration probe without visible penetration hole TC Type T	70 mm / Ø 5 mm — 15 mm / Ø 1.5 mm	-50 to +350 °C	±0.2 °C (-20 to +70 °C) Class 1 (remaining range)		0603 2693 **Connection:** Fixed cable
Frozen food probe for screwing in without pre-drilling TC Type T	110 mm / Ø 8 mm — 30 mm / Ø 4 mm	-50 to +350 °C	±0.2 °C (-20 to +70 °C) Class 1 (remaining range)	8 sec	0603 3292 **Connection:** Plug-in cable
Stainless steel food probe (IP67), with Teflon cable, up to +250 °C, TC Type T	125 mm / Ø 4 mm — 30 mm / Ø 3.2 mm	-50 to +350 °C	±0.2 °C (-20 to +70 °C) Class 1 (remaining range)	7 sec	0603 3392 **Connection:** Fixed cable
Measurement tip with TC plug Type T, ideal for fast measurements on incoming goods	500 mm / Ø 1.5 mm	-50 to +350 °C	Class 1	5 sec	0628 0023

Air probe	Illustration	Meas. range	Accuracy	t₉₉	Order no..
Robust affordable, TC Type T	112 mm / Ø 5 mm — 50 mm / Ø 4 mm	-50 to +350 °C	±0.2 °C (-20 to +70 °C) Class 1 (remaining range)	25 sec	0603 1793 **Connection:** Fixed cable

Surface probe	Illustration	Meas. range	Accuracy	t₉₉	Order no..
Waterproof surface probe with flattenedmeasurement tip for flat surfaces, TC Type T	112 mm / Ø 5 mm — 50 mm / Ø 6 mm	-50 to +350 °C	±0.2 °C (-20 to +70 °C) Class 1 (remaining range)	30 sec	0603 1993 **Connection:** Fixed cable

The measuring instrument in the TopSafe is waterproof with this probe

Wireless option

Wireless range up to 20 m
(without obstructions)

Update instruments with wireless option. Simply insert into the instrument.

Complete wireless probe for immersion/penetration measurements

Affordable NTC complete wireless probe for immersion/penetration measurements

Versatility with wireless probes

In addition to the conventional probes with a wire, the new Compact Line instruments can optionally communicate with wireless probes, i.e. measurement values are transferred wirelessly by radio from the wireless probe to the measuring instrument. The distance between the measuring instrument and the measurement site can be up to 20 m. Inconvenient probe wires are a thing of the past.