testo 205
pH/Temperature Measuring Instrument

Instruction Manual

General Information

Please read this document through carefully and familiarise yourself with the operation of the product before putting it to use. Keep this documentation to hand so that you can refer to it when necessary.

Symbols and what they mean

Symbol	Meaning	Remarks
 Warning!	Warning text: **Warning!** Serious physical injuries could occur if the precautionary measures specified are not taken.	Please read warning carefully and take the precautionary measures specified.
 Caution!	Warning text: **Caution!** Light physical injuries could occur if the precautionary measures specified are not taken.	Please read warning carefully and take the precautionary measures specified.
!	Note	Pay particular attention to Notes.
Taste	Button name	Press button.
Text, 	Display content	Text or symbol is shown on the display.

Contents

1. Safety Information

Avoid electrical hazards:

- Do not measure on or near live parts!

Preserving product safety/warranty claims:

- Operate the instrument properly and according to its intended purpose and within the parameters specified. Do not use force.
- Do not store together with solvents (e.g. acetone).
- Temperature data on probes/sensors refer only to the measurement area of the sensors. Do not expose handles and cables to temperatures greater than 70°C if they are not specifically designed for higher temperatures.
- Open the instrument only when this is expressly described in the documentation for maintenance purposes.
- Only the maintenance and service work described in the documentation should be carried out. Please adhere to the steps specified. For safety reasons, only original spare parts from Testo should be used.

Ensure correct disposal:

- Disposal of defective rechargeable batteries and spent batteries at the collection points provided.
- Send the instrument directly to us at the end of its life cycle. We will ensure that it is disposed of in an environmentally friendly manner.

2. Intended Purpose

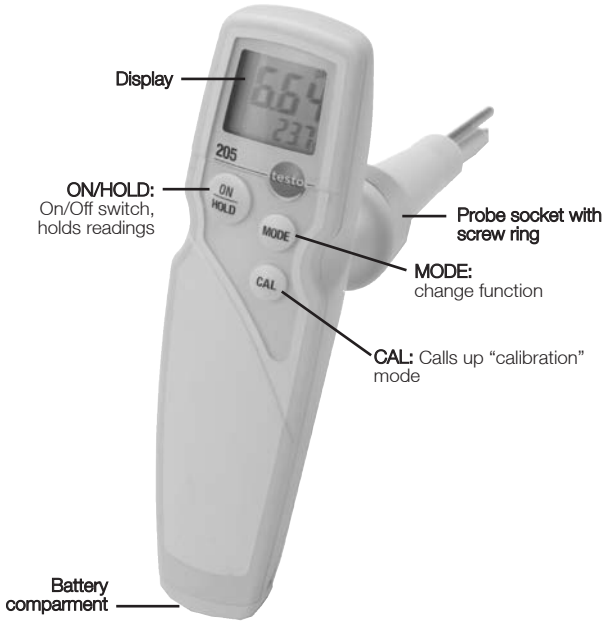
testo 205 is a practical instrument for measuring pH value and temperature.

Its appliclation areas include the measurement of semi-solid substances in the food production and processing sector: abattoirs, cutting plants, Incoming goods checks during transport, cheese production and in bakeries.

testo 205 is not suitable for diagnostic measurements in the medical sector.

3. Product Description

3.1 Display and control elements



3.2 Power

Power is via four button cells (Type LR44, included with delivery).

3.3 Storage cap

The storage cap filled with electrolyte gel is used to store the probe between measurements.

The probe is only immediately ready to operate if stored in electrolyte gel.

If the probe has been out of the electrolyte gel for a longer period of time, it must be stored in the electrolyte gel for approx. 12 hours to regenerate.

The storage cap can also be attached to the wall/transport bracket.

3.4 Wall/Transport bracket

The wall/transport bracket with belt holder and attachment unit for the storage cap is used for the safe storage of the measurement instrument at a fixed point or during transport.

4. Initial Operation

Insert battery

1 Remove battery compartment.

2 Insert batteries (4 x Type LR44). Watch out for +/-!

3 Push battery compartment back in.

4 Remove protection strip on the storage cap.

5. Operation

5.1 Switching on/off

▶ Switch on instrument: ON/HOLD.

- All segments light up briefly and the instrument changes to the measurement mode.

▶ Switch off instrument: Keep ON/HOLD pressed.

5.2 Setting instrument

The following functions can be set:

Function	Description	Setting options
Temperature unit	Sets unit	**°C** or **°F**
Auto Hold (**AUTO HOLD**)	Automatically holds reading, as soon as it is stable*	**On** (switched on) or **OFF** (switched off)
Gradient / Offset	Displays gradient and offset values stored in the instrument	None (Information only)
Calibration method (**CAL**)	Sets 1, 2 or 3 point calibration	**1P**, **2P** or **3P**
Calibration points (**CAL pH**)	Sets calibration points	1P: **4**, **7** or **10** 2P: **4 7** or **7 10**
Auto Off (**AUTO OFF**)	Instrument switches off automatically after 10 minutes if no button has been pressed	**On** (switched on) or **OFF** (switched off)
Display light (**bl**)	Display light goes on for approx. 3 s whenever a button is activated	**On** (switched on) or **OFF** (switched off)
Beeper (**bP**)	Warning sound (button pressed, stable reading reached with Auto Hold function switched on)	**On** (switched on) or **OFF** (switched off)

* Modification less than 0.02pH in 20s

! The setting procedure can be interrupted by switching off the instrument. The modifications are then not saved.

The instrument is switched off.

1 Opening the setting mode: MODE is kept pressed + ON/HOLD.

2 Select temperature unit (**°C** or **°F**): CAL.
Confirm selection: MODE.

3 Switch Hold on (**On**) or off (**OFF**): CAL.
Confirm selection: MODE.

- The gradient and offset values stored in the instrument are displayed as information.

4 Change view: MODE.

5 Select calibration method (**1P**, **2P** or **3P**): CAL.
Confirm selection: MODE.

If 1 or 2 point calibration has been set:

- ▶ Select calibration points (4, 7 or 10, and 4 7 or 7 10): CAL.
Confirm selection: MODE.

6 Switch Auto Off on (**On**) or off (**OFF**): CAL.
Confirm selection: MODE.

7 Display light on (**On**) or off (**OFF**): CAL.
Confirm selection: MODE.

8 Switch beeper on (**On**) or off (**OFF**): CAL.
Confirm selection and save settings: MODE.

- All of the segments light up briefly and the instrument changes to the measurement mode.

5.3 Measuring

Setting up the instrument

! If large quantities of the electrolyte gel are stuck to the probe when removed from the storage cap, it is a sign that the gel is spent.

- ▶ A new storage cap is needed.
- ▶ Clean off the pH probe before and after each measurement with low concentration soap water followed by tap water (water temperature should be below 40 °C). Dab dry with a paper towel. Do not rub.

1 Carefully remove storage cap.

2 Switch on instrument: ON/HOLD.

Carry out measurement

Measurement tip made of glass, risk of breakage!

Risk of injury on account of glass parts which remain in the measurement medium.

- ▶ Check measurement tip of pH probe after each measurement for damage.

- ▶ Immerse/penetrate probe in the medium to be measured.
- The measured pH and temperature values are displayed. The readings are updated twice a second.
  - ▶ Hold readings manually: [ON/HOLD].
  - ▶ Restart measurement: [ON/HOLD].
  - If Auto-Hold is switched on, **AUTO HOLD** flashes until the instrument has found a stable pH reading. The readings are then frozen (**AUTO HOLD** lights up). If no stable pH readings have been found within 300s, the measurement is stopped (◷ and **AUTO HOLD** light up).
    - ▶ Restart measurement: [ON/HOLD].

Finish measurement

1 Switch off instrument: Keep [ON/HOLD] pressed.

2 Clean off the pH probe with low concentration soap water followed by tap water (water temperature should be below 40 °C). Dab dry with a paper towel. Do not rub.

3 Insert probe in the storage cap filled with electrolyte gel.

! The probe tip must be immersed in the electrolyte gel. Keep electrolyte gel clean.

5.4 Calibrating instrument

! Please also adhere to the instructions supplied with the buffer solution (Testo buffer: see label).

The instrument is switched on and is in the measurement mode.

1 Open calibration mode: [CAL].

- Calibration point (4, 7 or 10) is shown and **CAL** flashes.

2 Skip calibration point: [MODE].
-or-
Immerse probe in the buffer solution and start calibration: [CAL].

- The instrument waites for a stable reading: **AUTO** flashes.
- If a stable reading is available (change less than 0.02pH in 20s), the calibration point calibrates and the instrument changes to the next calibration point (if available) or to the gradient and offset value display.
  - ▶ Carry out calibration manually: [CAL].

▶ Repeat Step 2 for additional calibration points.

- Once calibration is complete, the amount of the gradient and offset value is shown. If the amount of the gradient value is less than 50mV / pH or the amount of the offset value is greater than 60mV, the pH electrode is spent and must be replaced.

3 Return to measurement view: Press any button.

6. Service and Maintenance

6.1 Checking electrolyte gel

▶ Check the electrolyte gel in the storage cap regularly for contamination and ensure it is filled to the correct level. Replace storage cap if necessary.

6.2 Cleaning housing

▶ Clean housing with a damp cloth (soap water) if dirty. Do not use abrasive cleaning agents or solutions!

6.3 Changing the probe

! The instrument must be newly calibrated once a probe has been changed (See 5.4 Calibrating instrument, P. 10)!

Instrument must be switched off. Plug contacts in the instrument should not be touched!

1 Turn screw ring anti-clockwise and remove probe.

2 Attach new probe (watch for guide groove) and tighten screw ring in a clockwise direction.

6.4 Changing battery

1 Pull out battery compartment.

2 Remove spent batteries and insert new batteries (4 x Type LR44). Watch out for +/-.

3 Reinsert battery compartment.

7. Questions and Answers

Question	Possible causes	Possible solution
Readings instable.	Static charge.	▶ Rinse off pH electrode with tap water or low concentration soap water.
	Air cushion from measurement electrode gets into measurement tip.	▶ Shake pH electrode in a downward direction like with a fever thermometer.
	pH electrode has dried out.	▶ Place pH electrode for several hours in water or diluted hydrochloric acid.
lights up.	Remaining capacity of battery < 10h.	▶ Change battery (See 6.4 Changing battery, P. 11)
Instrument switches itself off.	Auto Off function is switched on.	▶ Auto Off. (See 5.2 Setting instrument, P. 8)
Er1 lights up.	Invalid gradient value of pH electrode.	▶ Recalibrate instrument, a new buffer solution could be used.
	pH electrode defective.	▶ Change probe.
Er2 lights up.	Invalid offset value of the pH electrode.	▶ Recalibrate instrument, a new buffer solution could be used.
	pH electrode defective.	▶ Change probe.
Er3 lights up.	Invalid gradient value of pH electrode following 3 point calibration.	▶ Recalibrate instrument, a new buffer solution could be used.
	pH electrode defective.	▶ Change probe.
Er4 lights up.	Probe not inserted correctly.	▶ Check connection.
	pH electrode defective.	▶ Change probe.

8. Technical data

Feature	Values
Parameters	pH/°C
Sensor	pH electrodes/NTC
Measurement range	0 to 14 pH / ±0 to +60 °C (short-term to +80°C, max. 5min)
Resolution	0.01 pH / 0.1 °C
Accuracy	±0.02 pH / ±0.4 °C
Temperature compensation	Automatic
Probe	Probe module
Measuring rate	2/s
Operating temperature	±0 to +50 °C
Storage temperature	-20 to +70 °C
Power	4 x button cell, Type LR44
Battery life	Approx.80h
Housing	ABS
Protection class	IP65
CE guideline	89/336/EEC
Dimensions (lxwxh)	145 x 38 x 167
Warranty	2 years, excluding probe module

9. Accessories and Spare Parts

Name	Item no.
Probe module incl storage cap with electrolyte gel	0650 2051
Storage cap 205 with electrolyte gel, 1 off	0554 2051
Storage cap 205 with electrolyte gel, 3 off	0554 2052
pH buffer solution (4.01pH), 250ml, 1 off	0554 2061
pH buffer solution (4.01pH), 250ml, 3 off	0554 2062
pH buffer solution (7.00pH), 250ml, 1 off	0554 2063
pH buffer solution (7.00pH), 250ml, 3 off	0554 2064
pH buffer solution (10.01pH), 250ml, 1 off	0554 2065
pH buffer solution (10.01pH), 250ml, 3 off	0554 2066
Aluminium case	0554 2069

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