



# testo 270 BT – Deep-frying Oil Tester

0563 2770

Instruction manual





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# 1 About this document

- The instruction manual is an integral part of the instrument.
- Keep this documentation to hand so that you can refer to it when necessary.
- Always use the complete original instruction manual.
- Please read this instruction manual through carefully and familiarize yourself with the product before putting it to use.
- Hand this instruction manual on to any subsequent users of the product.
- Pay particular attention to the safety instructions and warning advice in order to prevent injury and damage to the product.

## 2 Safety and disposal

### 2.1 Security

#### General safety instructions

- Only operate the product properly, for its intended purpose, and within the parameters specified in the technical data.
- Do not apply any force.
- Do not operate the instrument if there are signs of damage to the housing or connected cables.
- Dangers may also arise from objects to be measured or the measuring environment. Always comply with the locally valid safety regulations when carrying out measurements.
- Do not store the product together with solvents.
- Do not use any desiccants.
- Only perform maintenance and repair work on this instrument that is described in this documentation. Follow the prescribed steps exactly when doing the work.
- Use only original spare parts from Testo.

#### Batteries

- Improper use of batteries may cause the batteries to be destroyed, or lead to injury due to current surges, fire or escaping chemicals.
- Only use the batteries supplied in accordance with the instructions in the instruction manual.
- Do not short-circuit the batteries.
- Do not take the batteries apart and do not modify them.

## 2 Safety and disposal

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- Do not expose the batteries to heavy impacts, water, fire or temperatures in excess of 60 °C.
- Do not store the batteries in the proximity of metal objects.
- In the event of contact with battery acid: rinse affected areas thoroughly with water, and if necessary consult a doctor.
- Do not use any leaky or damaged batteries.

### Warnings

Always pay attention to any information denoted by the following warnings. Implement the precautionary measures specified!

 **DANGER**

Risk of death!

 **WARNING**

Indicates possible serious injury.

 **CAUTION**

Indicates possible minor injury.


 **ATTENTION**

Indicates possible damage to equipment.

## 2.2 Disposal

- Dispose of faulty rechargeable batteries and spent batteries in accordance with the valid legal specifications.
- At the end of its useful life, deliver the product to the separate collection point for electric and electronic devices (observe local regulations) or return the product to Testo for disposal.



-  WEEE Reg. No. DE 75334352

### 3 Product-specific information

- Not suitable for children under 14 years
- Do not carry out measurements on live components.
- Do not expose handles and feed lines to temperatures in excess of 60°C unless they are expressly approved for higher temperatures. Temperature specifications on probes/sensors refer only to the measuring range of the sensor system.
- Only open the measuring instrument if this is expressly described in the documentation for the purposes of maintenance or servicing.

### 4 Intended use

The testo 270 BT is a handy measuring instrument for fast testing of cooking oils.

The TPM value (total polar materials) enables a statement on the ageing of cooking oils due to the effects of heat.

The following measuring tasks can be performed with the testo 270 BT:

- Displaying the temperature of the cooking oil:  
Indicator for correct setting of the deep fat fryer, checking of integrated temperature displays.
- Displaying the TPM value:  
Indicator for the ageing of the cooking oil.

The sensor works on a capacitive basis and determines as the reading the total polar materials as a %.

The free fatty acids, which are determined above all for the evaluation of unloaded oils (rancidity), cannot be detected with the testo 270 BT.



The temperature of the cooking oil to be measured must be at least 40 °C. The maximum operating temperature is 200 °C.



The testo 270 BT must be held in the hand for the duration of the measurement.



The sensor and the probe tube are designed to come into contact with oil used in deep fat fryers for the typical duration of a spot check measurement. The materials used in these components meet the relevant requirements in the Regulation (EC)1935/2004.




## 5 Product description















### 5.1 Instrument overview



1	Display	2	Control keys
3	Battery compartment	4	Probe shaft
5	Oil quality (%TPM) and temperature sensor	6	Min. immersion depth
7	Max. immersion depth		

#### Explanation of icons

	Refer to instruction manual
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	<p style="text-align: center;"><b>⚠ WARNING</b></p> <p><b>Caution! Risk of burns due to hot probe shaft after prolonged operation.</b></p> <p>- <b>Before touching the probe shaft or packing the instrument: switch instrument off and let the probe shaft cool down.</b></p>
	Do not dispose of old appliances with household waste.
	Symbol of the Bluetooth Special Interest Group (SIG)
	Declaration of conformity: Products marked with this symbol comply with all applicable Community regulations of the European Economic Area.
	Test symbol of the FCC in the USA
	Test symbol of the National Science Foundation (NSF)
	Australian test symbol
	Declaration of conformity: Products marked with this symbol comply with all applicable Community regulations of the United Kingdom.
	Japanese test symbol
	Test symbol of Taiwan
	Korean test symbol
	Brazilian test symbol
	Chinese RoHS (Restriction of Hazardous Substances) symbol
	Test symbol of Morocco

## 5.2 Storage of the instrument

### Suspension attachment



The angled handle can be used to hang the instrument on a hook.

### Plastic case


The instrument is securely stored in a plastic case for protection against contamination and for transport.

## 5.3 Items shown on the display

Items shown	Function/property
↑ 200 (flashing temperature value > 200 °C)	Temperature measuring range exceeded
↓ 40 (flashing temperature value < 40 °C)	Temperature measuring range undershot
Alarm ✨	Alarm indicator activated
PIN	Configuration mode locked
📶 flashes	Bluetooth connection is searched
📶	Bluetooth connection is active
🔋 (full)	Battery capacity 100 %
🔋 (66%)	Battery capacity 66 %
🔋 (33%)	Battery capacity 33 %
🔋 (<10%)	Battery capacity < 10 %
Alarm ↑	Upper TPM limit value exceeded
Alarm ↓	Lower TPM limit value exceeded

Items shown	Function/property
<b>Auto-Hold</b>	Readings held (automatically)
<b>°C / °F</b>	Temperature in °C or °F

## 5.4 Important display messages

Items shown	Function/property
<b>000</b> lights up	Instrument is ready to measure, sensor is not in oil.
Reading > <b>190</b> flashes	<p>Measured temperature is above 190 °C (374 °F). The reading flashes in the range from 190.1 °C (374 °F) to 200 °C (392 °F).</p> <p> Auto hold no longer possible. No measured values are recorded and not transferred to the app.</p>
<b>SER</b> lights up	Service - We recommend a technical check of the instrument by Testo Customer Service.

## 5.5 Control keys

Key	Function/property
<b>[⏻]</b>	<ul style="list-style-type: none"> <li>Switch instrument on/off</li> <li>Configure instrument</li> </ul>
<b>[Hold]</b>	<ul style="list-style-type: none"> <li>Start Auto-Hold measurement</li> <li>Switch to the measuring mode</li> <li>Configure instrument</li> </ul>
<b>[▲]</b>	<ul style="list-style-type: none"> <li><b>on/off; yes/no</b> - Configure instrument</li> </ul>
<b>[▼]</b>	<ul style="list-style-type: none"> <li><b>on/off; yes/no</b> - Configure instrument</li> </ul>

## 6 First steps

### 6.1 Inserting / changing batteries

**⚠ WARNING**


Serious risk of injury to the user and/or destruction of the instrument. There is a risk of explosion if the batteries are replaced with the wrong type.

- Only use non-rechargeable alkaline batteries.

**CAUTION**

Incorrectly inserted batteries can damage the instrument!

- Adhere to the polarity when inserting the batteries.

- ✓ The instrument is switched off.
- 1 Undo the screw on the battery compartment.
- 2 Remove the battery holder.
- 3 Insert batteries (2 x 1,5 V AAA Alkaline). Adhere to the polarity!
- 4 Insert the battery holder into the battery compartment.
- 5 Secure battery compartment with screw.
- 6 Switch instrument on: Press .
  - Display test is carried out: all segments light up.
  - The instrument switches to the measuring mode.



- **000** lights up on the display, the instrument is ready for use.
- 7 | If necessary, switch instrument off.



When not in use for a long period: Take out the batteries.

### Symbol explanation

	Do not allow children under 6 years of age to play with batteries.
	Do not throw batteries in the trash.
	Do not charge batteries.
	Do not place batteries near fire.
	Batteries are recyclable.

## 6.2 Switching the instrument on and off

### Switching on

- 1 | Press until the indicator elements appear in the display.
  - ▶ | Display test is carried out: all segments light up.  
The instrument switches to the measuring mode and is ready for operation.

### Switching off

- 1 | Press and hold for approx. 2 secs.
  - ▶ | Display goes off, instrument switches off.

## 6.3 Establishing a Bluetooth® connection



The instrument can be connected to the **testo Smart App** via Bluetooth® connection

- ✓ The measuring instrument is switched on.



To establish a connection via Bluetooth®, you need a tablet or smartphone with the Testo Smart App already installed on it.

You can get the App for iOS instruments in the App Store or for Android instruments in the Play Store.

Compatibility:

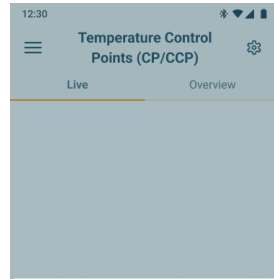
Requires iOS 13.0 or later/Android 8.0 or later, requires Bluetooth® 4.2 or higher.



- 1 Open the testo Smart App.
  - ▶ The app automatically searches for Bluetooth® devices in the vicinity.
- 2 If several devices are found, select the desired device and select **Connect**.

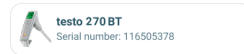
Also confirm the pairing request of the operating system (Android / iOS).

  - ▶ If necessary, switch the device to be connected off and on again to restart the connection module.
  - ▶ If the connection is successful, the Bluetooth® symbol stops flashing and the device is visible on the app in the device list menu item.



### Instrument detected

The following instrument is detected as available for connection. Do you want to connect?



Remember my choice



## 6.4 Description of important functions and displays

### 6.4.1 Alarm indicator



This function is only activated when registering via the testo Smart App using the “Testo Account”.

The alarm indicator uses the following display colours to show what range the measured TPM value is in:

- green            TPM value < lower limit value
- yellow         TPM value is between the lower and the upper limit value
- red             TPM value > upper limit value

The alarm indicator is switched on when the instrument is delivered. The TPM limit values are set as follows (only for the standard set, order no. 0563 2770):

- Lower limit value        20%
- Upper limit value        24%

### 6.4.2 Setting the TPM limit values



The TPM limit values can be set individually in the testo Smart App for the defined frypots.



The TPM limit values can be between 0 and 40%.  
The upper limit value (**Alarm** ↑) must be at least 1% higher than the lower limit value (**Alarm** ↓).

- 1 | Click on in the testo Smart App.
- 2 | Select **Application areas**.
- 3 | Select **Food safety**.



The menu **Food safety** can be selected as default page of the app by clicking on .

- ▶ | When the **Food safety** menu is called up for the first time, a tutorial with an introduction to the functions starts automatically.
- 4 | Click **[Add new frypot]** or select an existing frypot.

- 5 | Set the upper and lower TPM limit.
  - 6 | Click **[Save]**.
- ▶ New limits are saved and synchronized with the device.

### 6.4.3 Auto-Hold function

With the **Auto-Hold** function, the measured values are automatically held by the instrument after the equalization period and then transmitted to the app when using the **Frying oil quality** measurement program in the testo Smart App.

### 6.4.4 Auto-off function

When the **Auto-off** function is activated, the instrument automatically switches off after a certain time

- if the instrument is in the air: automatic switch-off after 2 mins.
- if the instrument is in measuring mode (sensor in the oil): no automatic switch-off.
- if the instrument is in hold or configuration mode: automatic switch-off after 10 mins.
- if the instrument is in configuration mode: automatic switch-off after 10 mins.

To activate/deactivate the **Auto-off** function, see chapter “Configuring the instrument”.





When paired, the **Auto-off** function is not active (even if it is set).


After interrupting the BT connection, **Auto-off** is activated again. The device switches off automatically after 2 or 10 minutes.

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### 6.4.5 Battery capacity

With decreasing battery capacity, a symbol lights up in the display (). If the empty battery symbol () flashes in the display, the remaining capacity is only approx. 30 min.



With low battery capacity ( flashes), Bluetooth® connection may be restricted.

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If the battery voltage is too low, the instrument automatically switches off.

- > Change batteries, see chapter “Changing batteries”.

## 6.5 Configuring the instrument

### 6.5.1 Setting options in the configuration mode



The settings required for measurements can be defined partly directly on the device, partly additionally or exclusively via the testo Smart App.

Configurations	Setting options
Setting the TPM limit values	Only possible via app
Carry out calibration	Only possible via app
Automatically switch off the instrument <b>Auto-off</b>	<b>on</b> : Instrument switches off automatically after 2 or 10 mins. <b>off</b> : No automatic switch-off. Additionally possible via app
Set alarm indicator	Only possible via app and after registration
Set temperature unit <b>°C, °F</b>	<b>°C</b> or <b>°F</b> Additionally possible via app
Lock configuration, including TPM limit values	Only possible via app
Reset the adjustment value	Only possible via app
Firmware version	Firmware versions of the product components are shown. Possible via device or app:
Bluetooth	<b>on</b> : Bluetooth activated <b>off</b> : Bluetooth deactivated

## 6.5.2 Carrying out configuration on the device

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Critical settings can be protected by PIN via the testo Smart App.

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- ✓ Requirement: The instrument is switched off.

### Switch the instrument on

- 1 Hold **[Hold]** down and press **[⏻]**.

### Automatically switch the instrument off

- ▶ **Auto-off** and **on** or **off** light up in the display.
- 2 Switch **Auto-off** on or off: **[▲]** or **[▼]** and confirm with **[Hold]**.

### Set the temperature unit

- ▶ **°C** or **°F** lights up in the display.
- 3 Set the temperature unit (**°C/°F**): **[▲]** or **[▼]** and confirm with **[Hold]**.

### Switch on/off Bluetooth

- ▶ **Bluetooth** and **on** or **off** light up in the display
- 4 Switch **Bluetooth** on or off: **[▲]** or **[▼]** and confirm with **[Hold]**.

## 6.5.3 Quitting configuration mode early and saving

You can quit the configuration mode early.

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The configuration mode cannot be stopped in the adjustment / calibration process.

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- 1 Quit configuration mode early: Press and hold **[⏻]** for approx. 1 sec.
  - ▶ Configuration mode is stopped.  
The values which have so far been set and confirmed with **[Hold]** are applied.  
The instrument switches to the measuring mode.

## 6.5.4 Carrying out configuration via app

✓ Device is connected to the testo Smart App via Bluetooth®.

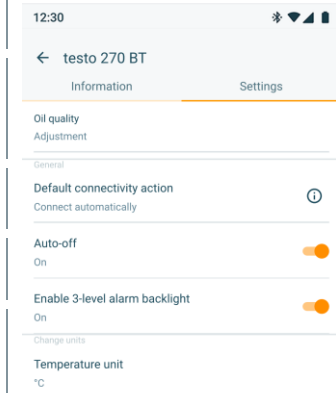
1 Click on  in the testo Smart App.

2 Select  **Measurement instruments**

3 Select measurement device.

4 Select **Settings** tab.


5 Change the desired settings, e. g. enable/ disable alarm indicator.



## 6.5.5 Locking / unlocking configurations

Via the testo Smart App you can lock/unlock the set values, including TPM limit values, from the configuration. The instrument is delivered with the configuration mode unlocked (PIN is deactivated).

✓ Device is connected to the testo Smart App via Bluetooth®.

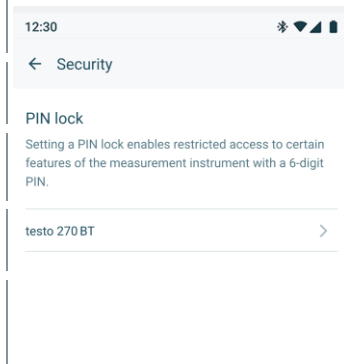
1 Click on  in the testo Smart App.

2 Select  **Settings**.

3 Select  **Security**.

4 Select measurement device.

5 Define the desired PIN or disable locking by entering the PIN.



## 7 Using the product

### 7.1 General measurement information

#### Notes on calibration

All testo measuring instruments are factory tested by us before delivery and adjusted to their own specific level of accuracy. To ensure a consistently high level of accuracy, we recommend the instrument is regularly checked.

You have the following options with the testo 270 BT cooking oil tester:

- **Testo factory calibration according to ISO** (accuracy +/- 2% TPM<sup>1</sup>):

You can order an ISO calibration from Testo's calibration subsidiary, Testo Industrial Services in Kirchzarten, using order number 0520 0028. This means your testo 270 BT will be calibrated at two points (at approx. 3% and at approx. 24% TPM) under precise laboratory conditions.

Furthermore, you have the following options for checking your testo 270 BT yourself at any time:

- **with Testo reference oil** (accuracy +/- 2.5% TPM<sup>1</sup>):

With the Testo reference oil (order no. 0554 2650), you can check the measuring instrument precisely and, if necessary, readjust it (please pay attention to the description in the instruction manual for this).

- **with the simple function test in cooking oil** (accuracy +/- 3% TPM<sup>1</sup>):

For a simple function test without adjustment, we recommend you carry out a measurement during the commissioning of your new instrument in unused cooking oil at 150 to 180 °C.

You should ideally carry out this measurement several times in succession and note the respective readings. The mean value of these readings represents your specific reference value for subsequent instrument checking. To use the determined reference value as a comparative value for a check, always carry out the measurement for instrument checking in unused cooking oil at 150 to 180 °C.

Please make sure that the reference value is recalculated if the type of oil or oil supplier changes.

The testo 270 BT enables several measurements to be carried out one immediately after the other without any waiting times.

#### **Which oils/cooking fats can be measured?**

In principle, all oils and fats intended for deep fat frying can be measured.

This includes, for example, rapeseed, soya bean, sesame, palm, olive, cotton seed or groundnut oil. Fats from animal sources can also be measured. There

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<sup>1</sup> typically, based on Testo in-house reference, at an ambient temperature of 25 °C.

may be a variation of several percentage points in the % TPM value for fresh cooking oils, depending on the type.

The maximum service life for the cooking oil cannot be derived from this.

Example: Fresh palm oil has a higher % TPM value than other cooking oils, but ages considerably more slowly.

### **Use of additives**

The testo 270 BT is designed for the use of pure fats/oils. If additives are used, deviations may occur.

### **Comparison of laboratory methods / testo 270 BT**

Cooking oil is a mixture of substances with a wide variety of polarities. During ageing, the proportion of more highly polar components increases. The laboratory method of column chromatography separates the fat into a polar and a non-polar group. The proportion of the polar group compared to the total amount of cooking oil being investigated is described as the % TPM value (total polar materials).

The % TPM value established by column chromatography may vary slightly depending on the setting of the separation limit between the polar and the non-polar group.

Depending on the type of fat, slight variations of the polarity in both groups (polar/non-polar) may occur which are not however identified by the chromatography.

On the other hand, the testo 270 BT records the entire polarity of the cooking oil and thus the actual polarity of both groups (polar/non-polar). This means the reading of the testo 270 BT may be higher or lower than that of the column chromatography in individual cases.

An example of this is coconut oil, for which the testo 270 BT shows higher TPM values than column chromatography. However, this fat is unsuitable for deep fat frying and is therefore primarily used for roasting.

### **Free fatty acids**

The testo 270 BT measures the total amount of polar materials in the cooking fat (% TPM) which makes it very possible to evaluate the load of the oil as a result of deep fat frying. On the other hand, free fatty acids (FFAs) are used for the evaluation of the age of the fat during storage. FFAs are not suitable for identifying the thermal loads of the oil. FFAs cannot be measured with the testo 270 BT.

### **Polymeric triglycerides (PTGs)**

Polymeric triglycerides are also being used for the evaluation of cooking oils with increasing frequency. The results of this method are in most cases comparable with the % TPM value.

PTG  $\approx$  % TPM/2

## 7.2 Carrying out measurements

### CAUTION

Avoid improper handling of the appliance.

- Do not use force!

### ⚠ WARNING



**Risk of burns due to hot instrument parts (sensor and probe shaft)!**

- Do not touch hot instrument parts with your hands.
- In the event of burns, immediately cool the relevant spot with cold water and see a doctor if necessary.



Please take note of the following information in order to obtain correct measurement results:

- Take the product being deep fried out of the oil and wait 5 mins until there are no more bubbles rising before measuring.
- If you suspect a measurement error due to water being contained: Repeat the measurement after 5 mins (do not deep fry during this time, keep oil/fat at a high temperature). If the new reading is lower, measure again after 5 mins until the reading stabilises if necessary.
- Keep the sensor away from metallic parts (e.g. deep-frying basket, pan walls), as these may affect the measurement result. Minimum distance from metal parts: 1 cm on each side.
- Measurement in hot oil min. 40 °C, max. 200 °C.
- Adhere to min. and max. marking when immersing in oil.
- "Temperature striations" in the oil may cause measurement errors. Move instrument in the deep fat fryer.
- Cleaning of the sensor is recommended before every measurement or when changing from one deep fat fryer pan to the next, see chapter "Cleaning the sensor".
- Switch off induction deep fat fryers during the measurement or take a cooking oil sample, as the electromagnetic field can lead to incorrect readings.
- Change cooking oil as from approx. 24% TPM. A different limit value applies in some countries. If the measured values are above the country-specific limit value, the cooking oil should be changed!

- 1 Immerse the sensor in cooking oil. Adhere to the immersion depth!
- 2 The measurement automatically starts if the oil temperature is within the permissible measuring range (40 to 200 °C):
  - ▶ The display lights up in color (if function is activated via testo Smart App/ testo Account) and the measurement values are shown.

- If the oil temperature is outside the permissible measuring range (40 to 200 °C), no measurement values are shown..
- ▶ Display flashes until the measured values have stabilized.
- 3 Wait until **Auto Hold** is shown in the display.
    - ▶ Readings are automatically held by the instrument, and if the measurement program **Frying oil quality** is used in the testo Smart App, transferred to the app afterwards.  
With the alarm indicator activated, the display colour lights up.
  - 4 If necessary read the measurement values.
  - 5 To switch to the measuring mode: Briefly press **[Hold]** (< 1 sec).

## 7.3 Function test

For a simple function test without adjustment (accuracy +/- 3 % TPM<sup>2</sup>), we recommend a measurement during the commissioning of your new instrument in unused deep-frying oil at 150 to 180 °C.

We recommend performing the function test every time after refilling the deep fryer with fresh oil.

- 1 Perform measurement in unused deep-frying oil at 150 to 180 °C, see chapter “Carrying out measurements”.
- 2 Note reading.
- 3 Repeat steps 1 and 2 several times.
  - ▶ The average of the readings is your specific reference value for subsequent instrument testing.



When changing the type of oil or the oil supplier, the reference value must be determined anew.



With implausible readings, we recommend the calibration or adjustment in the testo reference oil, see chapter “Calibrating/adjusting the instrument”.

Your specific reference value:

\_\_\_\_\_


\_\_\_\_\_


<sup>2</sup> typical, referred to testo internal reference, at an ambient temperature of 25 °C

# 8 Controls via testo Smart App

With the testo Smart App, you can extend the range of functions of your testo 270 BT and save measurement values digitally, create reports, make settings and calibrations.




## 8.1 Overview of Food Safety


The  **Food safety** application area combines all the functions required for monitoring the quality of frying oil.

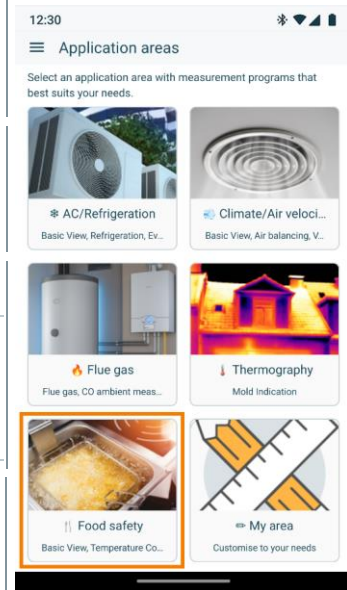
1 Click on  in the testo Smart App.

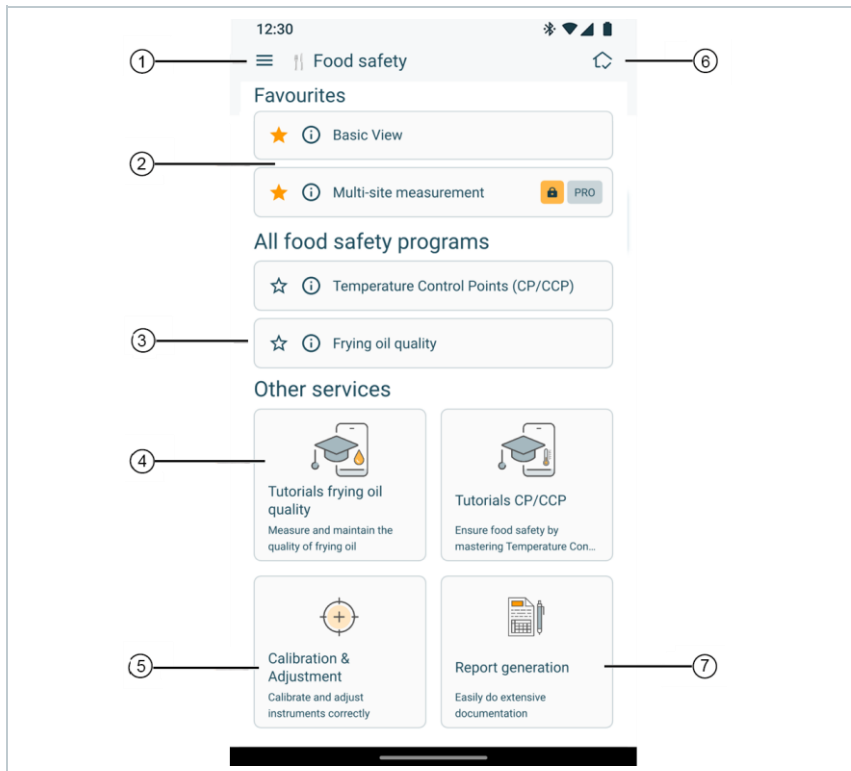
2 Select  **Application areas.**

3 Select  **Food safety.**

 The menu  **Food safety** can be selected as default page of the app by clicking on .

▶ When the  **Food safety** menu is called up for the first time, a tutorial with an introduction to the functions starts automatically.





1	Choice of applications	2	Possibility to define certain measurement programs as favourites
3	Program for frying oil quality	4	Tutorials with additional information
5	Menu for calibration of connected measuring instruments	6	Possibility to define the actual view as default site
7	Menu for report generation		




## 8.2 Overview of operating controls



1	Choice of applications	2	Display of selected frypot
3	Drop-down with additional information	4	Display of alarm limits
5	Display of connected measuring instruments	6	Button(s) (the menu adapts depending on the application selected)
7	Measurement configuration (select and configure frypots)	8	Show/ hide channels

## 8.3 App options

### 8.3.1 Setting the language



- 1 | Click on .
- 2 | Select  **Settings**.
- 3 | Select  **Language**.
  - ▶ A selection list is displayed.
- 4 | Select the required language.
  - ▶ The language is changed.

### 8.3.2 Displaying App Info






In App Info you can find the version number of the installed App.

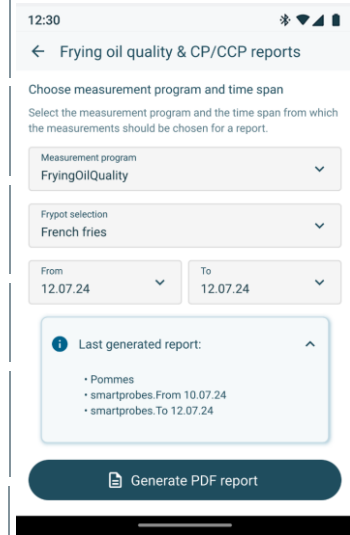
---

- 1 | Click on .
- 2 | Select  **Help and Information**.
- 3 | Select **Instrument information**.
  - ▶ The version number of the app and the ID are displayed.

## 8.4 Exporting readings

Determined measurement results for one or more fryers and freely definable time periods can be displayed and exported as reports in PDF format.

- 1 Click on  in the testo Smart App.
  - 2 Select  **Application areas**.
  - 3 Select  **Food safety**.
  - 4 Select **Report generation**.
  - 5 Define report details and click **[Generate PDF report]**.
- ▶ The desired report is created and can be shared with other apps.



## 9 Maintaining the product

### 9.1 Inserting / changing batteries

#### ⚠ WARNING


Serious risk of injury to the user and/or destruction of the instrument.  
 There is a risk of explosion if the batteries are replaced with the wrong type.

- Only use non-rechargeable alkaline batteries.

#### CAUTION

Incorrectly inserted batteries can damage the instrument!

- Adhere to the polarity when inserting the batteries.

- ✓ The instrument is switched off.
- 1 Undo the screw on the battery compartment.
- 2 Remove the battery holder.
- 3 Insert batteries  
(2 x 1,5 V AAA Alkaline).  
  
Adhere to the polarity!
- 4 Insert the battery holder into the battery compartment.
- 5 Secure battery compartment with screw.
- 6 Switch instrument on: Press .
  - Display test is carried out: all segments light up.
  - The instrument switches to the measuring mode.



- 000 lights up on the display, the instrument is ready for use.
- 7 | If necessary, switch instrument off.



When not in use for a long period: Take out the batteries.

## 9.2 Cleaning the sensor

### WARNING



**Risk of burns due to hot instrument parts (sensor and probe shaft)!**

- Do not touch hot instrument parts with your hands.
- Allow instrument to cool sufficiently before cleaning.
- In the event of burns, immediately cool corresponding spot with cold water and see a doctor if necessary.

### CAUTION

#### **Possible damage to the sensor!**

- Do not remove cold oil residues from the sensor.
- Do not use any sharp-edged objects.
- Do not use aggressive cleaning agents and solvents.

#### **Improper handling**

- Do not use force!

- 1 | Gently clean sensor with a soft paper towel, or rinse under running water.



Do not use any aggressive cleaning agents or solvents! Mild household cleaning agents and soap suds may be used.

- 2 | Carefully dry sensor with a soft paper towel.

#### **With cold oil residues on the sensor**

- 1 | Immerse sensor in hot oil.
- 2 | Allow sensor and probe shaft to cool until there is no longer a risk of burns.
- 3 | Clean sensor before the oil residues cool down.

## 9.3 Cleaning the housing

- ✓ The instrument is switched off.
- 1 If the housing of the instrument is dirty, clean it with a damp cloth.



Do not use any aggressive cleaning agents or solvents! Mild household cleaning agents and soap suds may be used.

- 2 Dry housing.

## 9.4 Cleaning plastic case

- 1 If the plastic case is dirty, clean it with a damp cloth.



Do not use any aggressive cleaning agents or solvents! Mild household cleaning agents and soap suds may be used.

- 2 Wipe plastic case with a dry cloth.

## 9.5 Calibrating/adjusting the instrument

You can check the accuracy of your instrument by carrying out a comparative measurement with the Testo reference oil (calibrating). If there is too great a difference between the reading and the reference value, future instrument readings can be adjusted to the reference value (adjusting).



The testo 270 BT should be checked with the Testo reference oil on a regular basis and adjusted if necessary (accuracy +/- 2.5% TPM) ). We recommend a monthly check as part of quality assurance.

We recommend you always use the Testo reference oil for calibration/adjustment of the sensor (order no. 0554 2650, 1 piece).

The sensor is exposed to large temperature jumps and pollutants while in measuring mode. We therefore recommend having an annual test carried out by Testo Customer Service. For more information go to: [www.testo.com](http://www.testo.com).

### Prepare calibration / adjustment with testo reference oil

- 1 Clean sensor before the calibration/adjustment, see chapter "Cleaning the sensor".






When heating the reference oil, make sure that no water gets into the reference oil or onto the sensor.

The reference oil must be heated to approx. 50 °C for calibration and adjustment.

- Heat water in a container (e.g. a cup) to approx. 50 °C.
- Place closed reference oil bottle in the water bath for approx. 10 min (maximum water level to lower edge of sealing cap).  
Then briefly shake the closed reference oil bottle, for better heat distribution in the bottle.



### Carry out calibration / adjustment

- Switch the instrument on and connect it with the testo Smart App, see chapter "Establishing a Bluetooth® connection".
- Click on  in the testo Smart App.
- Select  **Application areas.**
- Select  **Food safety.**
- Select **Calibration & Adjustment.**
- Select connected device and click **[Start calibration & adjustment].**
- Click **[Adjustment oil quality sensor].**
- Enter the TPM value that is indicated on the label of the reference oil bottle



There is a negative effect on the accuracy of the calibration/adjustment when the reference oil bottle is held by hand.

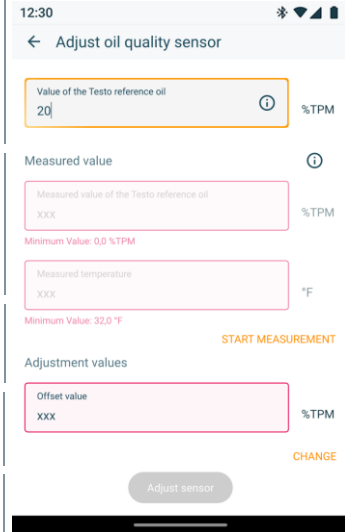
- 8 Immerse sensor in reference oil and click **[Start measurement]**.

Adhere to the immersion depth!

- 9 Start calibration/adjustment process in the app.  
For faster recording of readings: move sensor in oil.

# Wait until the measured value is stable.

- ▶ Display no longer flashes, Auto Hold is shown on the display.
- ▶ The offset between the target and actual value is calculated automatically by the app and entered in the Offset value field.



Adjustment with reference oil impairs the accuracy by 0.5% TPM compared to the factory calibration.



A maximum correction of +/-3% TPM is possible. If the TPM value displayed deviates by more than 3% TPM from the target value of the reference oil, a technical check of the instrument by Testo Service is recommended.

- 11 Set the offset value with **[Change]**.

**Carry out reset (delete adjustment and reset to factory setting)**

- 1 Click on in the testo Smart App.
- 2 Select **Application areas**.
- 3 Select **Food safety**.
- 4 Select **Calibration & Adjustment**.
- 5 Click **Reset** to reset the adjustment value.



## 10 Technical data for testo 270 BT

Feature	Value
Measuring range	Temperature: 40.0 ... 200.0 °C / 104.0 ... 392.0 °F TPM: 0 ... 40 %
Accuracy	Temperature: ±1,5 °C TPM <sup>3</sup> : ± 2 % (40.0 ... 190.0 °C / 104 ... 374 °F)
Resolution	Temperature: 0.1 °C/ 0.1 °F TPM: 0.1 %
Power supply	Batteries: 2x 1.5 V micro (type AAA)
Battery (micro AAA)	Designation according to IEC: LR03 Chem. composition: Zn-MnO <sub>2</sub> (alkaline)
Battery life at 20 °C	- Bluetooth disabled: Approx. 25 hrs continuous operation (corresponds to 500 measurements) - Bluetooth enabled: Approx. 20 hrs continuous operation (corresponds to 400 measurements)
TPM sensor	Capacitive sensor
Operating temperature	0 ... 50 °C / 32 ... 122 °F
Storage temperature	-20 ... 60 °C / -4 ... 140 °F
Operating humidity	0 ... 90 %rF Indoor use only
Pollution degree	PD2
Max. operating height	≤ 2000 m / 6561 ft
EMC environment	Basic electromagnetic environment
Display	LCD, 2-line, display illumination
Weight	255 g / 9.0 oz
Housing material	- Top part: ABS - Lower part: ABS-PC glass fibre 10% - Probe shaft: food-safe stainless steel
Dimensions	Approx. 50 mm x 170 mm x 300 mm / 2.0 x 6.7 x 11.8 in (WxHxD)
TPM response time	Approx. 30 secs
Protection class	IP65
Declaration of conformity	<a href="http://www.testo.com/eu-conformity">www.testo.com/eu-conformity</a>

<sup>3</sup> typical, referred to internal reference, at an ambient temperature of 25 °C.

# 11 Tips and assistance

## 11.1 Questions and answers

Question	Possible cause	Possible solution
↓ lights up and flashing temperature value < 40 °C appears in the display	Permissible measuring range undershot	Increase oil temperature.
↑ lights up and flashing temperature value > 200 °C appears in the display	Permissible measuring range exceeded	Reduce oil temperature.
Battery symbol  lights up	Battery charge level low (approx. 7 hrs remaining life)	Change batteries if necessary
Battery symbol  flashes	Batteries empty (approx. 30 min remaining life)	Change batteries
000 lights up	Sensor not in oil	Instrument is ready for measurement. Immerse sensor in oil.
Err 1 lights up	TPM sensor faulty	Contact Testo Customer Service or your dealer.
Err 2 lights up	Temperature sensor faulty	Contact Testo Customer Service or your dealer.
Err 3 lights up	TPM sensor and temperature sensor faulty	Contact Testo Customer Service or your dealer.
Err 4 lights up	Other fault	Contact Testo Customer Service or your dealer.
Err 5 lights up	Probe version is not supported	Contact Testo Customer Service or your dealer.
ser lights up	When entering the adjustment value, a TPM value discrepancy of more than 10% TPM. occurs.	We recommend a technical check of the instrument by Testo Customer Service.

If we have not been able to answer your question: please contact your local dealer or Testo Customer Service. See the back of this document or the [www.testo.com/service-contact](http://www.testo.com/service-contact) web page for contact details.

## 11.2 Accessories and spare parts

Description	Order no.
testo 270 BT in the plastic case, Testo reference oil	0563 2770
Plastic case for testo 270 BT (spare part)	0516 7302
ISO calibration certificate for testo 270 BT, calibration points 3% and 24% TPM	0520 0028
Testo reference oil (1 x)	0554 2650
Spare battery (1 x)	0515 0009

For a complete list of all accessories and spare parts, please refer to the product catalogues and brochures or visit our website [www.testo.com](http://www.testo.com)





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