

testo 300 - flue gas analyzer

Short instructions



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for free**
(more see page 2)









Register your Testo product at www.testo.com/register and receive a one-year free warranty extension.

The product registration is valid for 30 days after purchase.

For product registration terms and conditions and participating countries, please go to www.testo.com/register

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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.
- 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

Take the **testo information** document into account (accompanies the product).

3 Product-specific safety instructions

CAUTION

**The condensate may be acidic.
Risk of burns to the hands!**

- Wear acid-resistant safety gloves, glasses and overalls to empty the condensate.

- Make sure that the condensate has been fully emptied out of the condensate trap before the measuring instrument is stored for a long time.
- Before disposing of the product, the condensate trap must be emptied and the condensate in the crude gas tube disposed of in a suitable container.
- When testing a gas pipe, pay attention to the following:

WARNING

Dangerous mixture of gases

Danger of explosion!

- Make sure there are no leaks between the sampling point and the measuring instrument.
 - Do not smoke or use naked flames during the measurement.
-

4 Use

The testo 300 is a measuring instrument which enables the professional flue gas analysis of combustion plants, such as

- small combustion plants (oil, gas, wood, coal)
- low-temperature and condensing boilers
- gas heaters.

Using the instrument, these systems can be adjusted and checked for compliance with the applicable limit values.

The instrument has been verified as a short-term measuring instrument and should not be used as a safety (alarm) device.

The following tasks can also be carried out using the instrument:

- Regulating the O₂, CO and CO₂, NO, NO_x values in combustion plants to ensure optimum operation.
- Draught measurement.
- 4 Pa measurement
- Measuring and regulating the gas flow pressure in gas heaters.
- Measuring and optimising the flow and return temperatures of heating systems.
- Measuring the CO concentration in the ambient air.
- The instrument can be used for measurements on CHP plants in accordance with the first German Federal Immission Control Ordinance (BImSchV).
- In principle, the CO sensor can also be used for measurements on CHP plants. If you carry out more than 50 measurements on CHP plants per year, please contact your nearest Testo service centre or send the instrument to Testo Service for checking.

An NO_x filter for the CO sensor can be ordered as a spare part to replace a used filter.

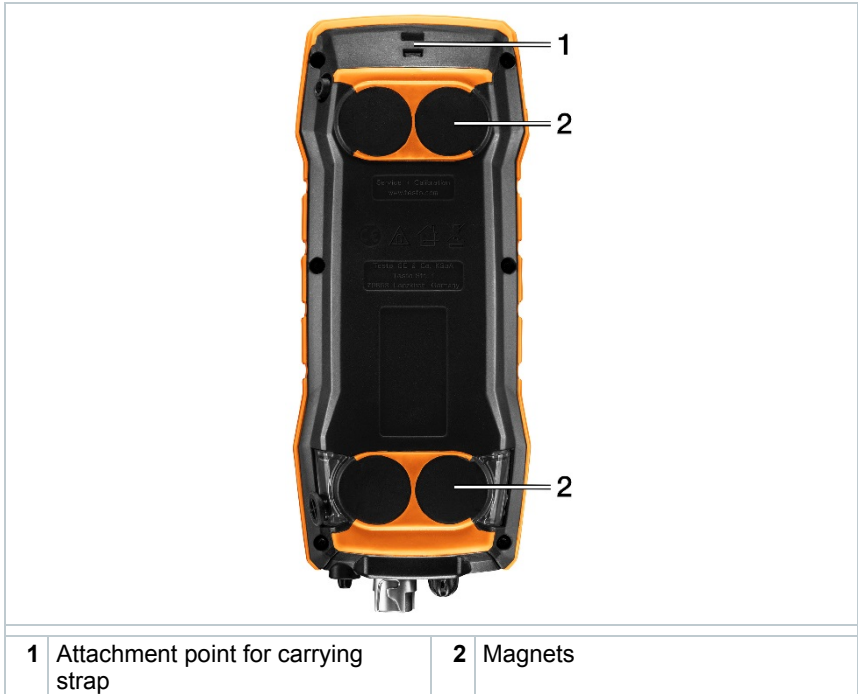
5 Product description

5.1 Front view

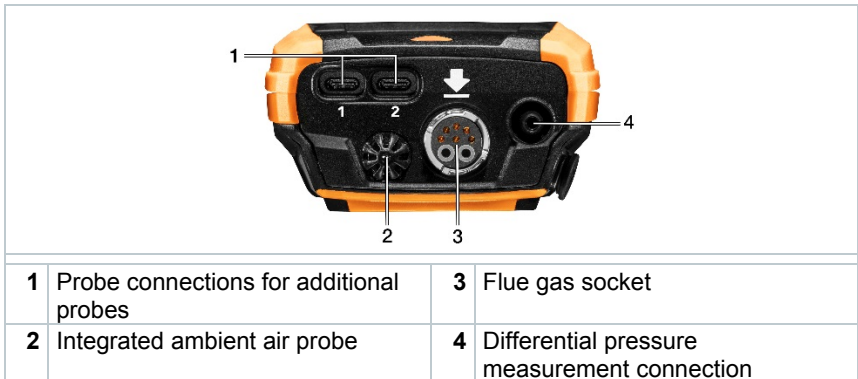


1	USB interface/ mains connection	4	User interface
2	Gas outlet	5	Condensate container
3	On/Off button	6	Connections

5.2 Rear view



5.3 Connections





There must be no more than one extension lead (0554 1201) connected between flue gas socket and flue gas probe.

6 Commissioning

6.1 Mains unit / energy storage unit

The measuring instrument is supplied with an energy storage unit.



Fully charge the energy storage unit before using the measuring instrument.



If the mains unit is connected, the measuring instrument is automatically powered via the mains unit.



Only charge the energy storage unit at an ambient temperature of 0 to 35°C.

6.1.1 Charging the energy storage unit


- 1 | Connect the instrument plug of the mains unit to the mains unit socket on the measuring instrument.
- 2 | Plug the mains plug of the mains unit into a mains socket.
 - ▶ | The charging process will start. LED in the condensate trap will flash.
 - ▶ | The charging process will stop automatically when the energy storage unit is fully charged.




If the energy storage unit is fully drained, the charging time at room temperature is approx. 5-6 hours. LED in the condensate trap lights up continuously in red.

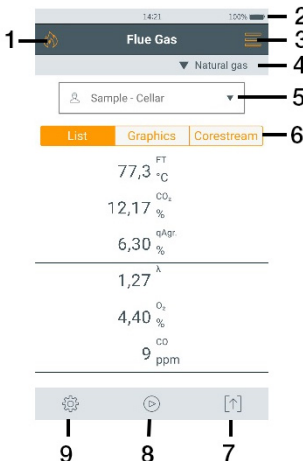
6.2 Switching instrument on and off

Current status	Action	Function
Instrument off	Press the button for a long time (> 3 s)	Instrument is switched on.

Current status	Action	Function
	When the measuring instrument is started for the first time, the setup wizard guides you through the following setting parameters step by step: <ul style="list-style-type: none"> - Country version - Language - Wireless LAN - Date and time - Own company address - E-mail account A tutorial can be started after the setup wizard. The tutorial demonstrates the general operation and the most important functions of the measuring instrument using examples.	
Instrument on	Press the button briefly (< 1 s)	Instrument is switched to standby mode. The instrument is re-activated when the button is pressed again.
Instrument on	Press the button for a long time (> 1 s)	Selection: [OK] Instrument is switched off or cancel the instrument being switched off with [Cancel] .

 Unsaved readings are lost when the measuring instrument is switched off.

6.3 Display - user interface












The screenshot shows the instrument's display with the following elements and callouts:









- 1:** A yellow arrow icon pointing to the right.
- 2:** The top status bar showing the time 14:21 and battery level 100%.
- 3:** The main display area showing "Flue Gas" and a menu icon.
- 4:** A dropdown menu currently showing "Natural gas".
- 5:** A search field containing "Sample - Cellar".
- 6:** Three navigation tabs: "List", "Graphics", and "Corestream".
- 7:** A settings gear icon.
- 8:** A power button icon.
- 9:** A back arrow icon.

The main display shows the following data:

- 77,3 °C (with FT unit)
- 12,17 % (with CO₂ unit)
- 6,30 % (with qAg⁺ unit)
- 1,27 % (with λ unit)
- 4,40 % (with O₂ unit)
- 9 ppm (with CO unit)

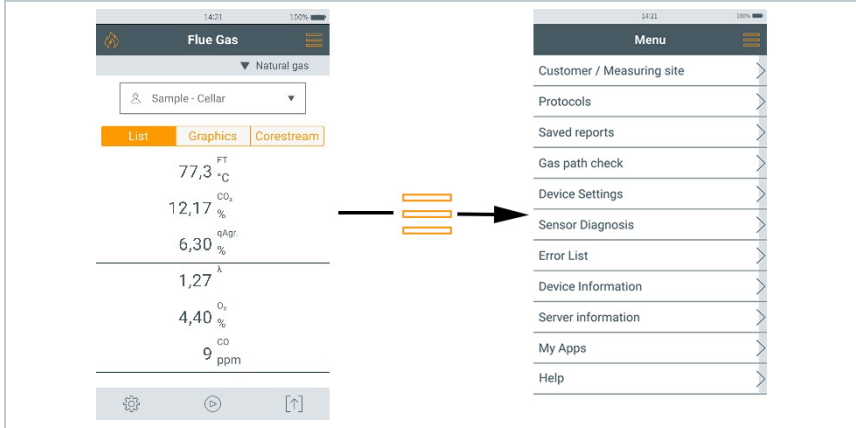
1		Measurement types
2		Status bar
3		Menu
4		Open the Fuels selection list
5		Select Customer/measuring site
6		Select reading display type
7		Protocols
8		Start measurement
		Pause measurement
		Stop measurement
9		Options

Further symbols on the user interface (without numbering)


	Repeat measurement
	One level back
	One level back
	One level back
	Cancel process
	Print values
	Save report
	Save and send report

7 Using the product

7.1 Overview of main menu (☰)

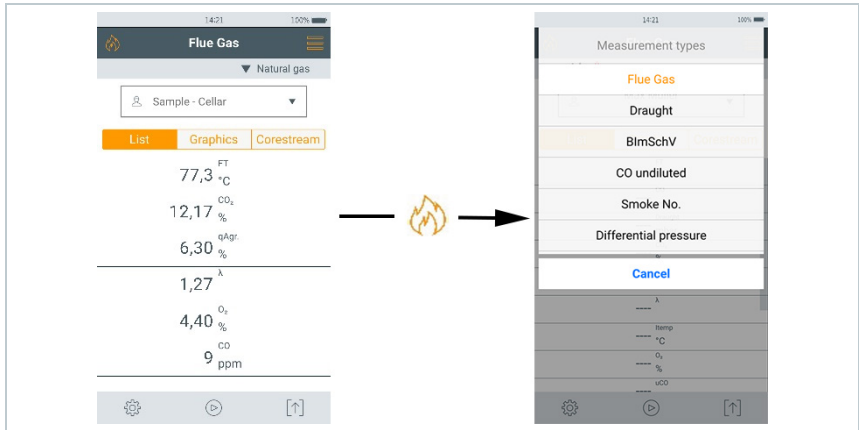


Main menu	Description
Customer / Measuring site	Create, edit and delete customer and system information.
Protocols	Call up, delete and send measurements that have been performed (various formats possible).
Saved reports	Call up and delete measurement report.
Gas path check	For perfect operation of the measuring instrument, regular tightness testing of measurement systems (measuring instrument + flue gas probe) is recommended.

Main menu	Description
Device Settings	Settings <ul style="list-style-type: none"> - Country version and language - WiFi - Date & Time - Own company address - Bluetooth - Sensor protection - NO₂ addition - O₂ ref. - Height compensation - Alarm limits - Display brightness - Hotspot
Sensor Diagnosis	Overview of the sensors fitted and their condition.
Error List	Call up error reports
Device information	Information <ul style="list-style-type: none"> - Device name - Serial number - MIN - Last service - Free memory - Operating hours - Operating hours since last service - Software version - Firmware version - Firmware date - qA version - qA date
Server information	Information about the available server
E-mail	Set up an e-mail account and the e-mail account can be called up. <div style="border: 1px solid black; padding: 5px; margin-top: 10px;">  To set up the e-mail account on the testo 300, the IMAP setting must be activated in the e-mail account at your account provider. You can find more information in your e-mail account itself, e.g. under FAQs or Settings. </div>

Main menu	Description
My Apps	Additional applications <ul style="list-style-type: none"> - Alarm clock - Gallery - Browser - Calendar - Pocket calculator - QuickSupport - File manager
Help	Aids <ul style="list-style-type: none"> - Device registration - Tutorial - Setup wizard - Online help - Testo website - Send error report - Update via USB



7.2 Overview of measurement types ()




Measurement types
Flue gas
Draught
BlmSchV
CO undiluted
Smoke No.
Differential pressure
Differential temp.

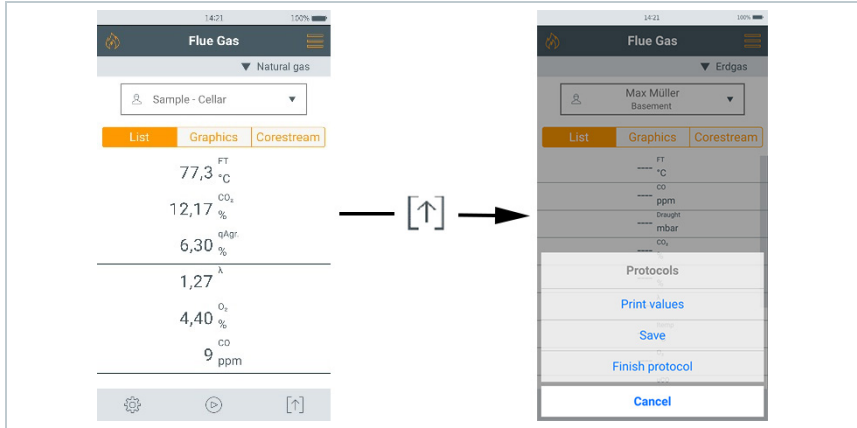
Measurement types
O ₂ Air
Gas flow
Oil flow
CO ambient
Tightness test 1
Tightness test 2
Let by test
4 Pa measurement

7.3 Overview of options ()

Options	Description
Config. measur. view	Add, delete () measurement parameters, change measurement views () and units (click on (Unit)).

Options	Description
Zeroing Gas Sensors	Manual sensor zeroing.  Menu is only available for measurements with gas sensors.

7.4 Overview of protocols ()



Protocols	Feature
Print values	Print out measuring values via Bluetooth®.
Save	Save measuring values, including selected customers / measuring sites. Saved measuring values can be retrieved in the main menu.
Finish protocol	Create, save and send measurement report, including <ul style="list-style-type: none"> - Own company data - Format and print - Customer data - Comments and pictures - Select measurements - Signature Saved reports can be retrieved in the main menu.

7.5 Get the measurement data in 3 steps

- 1 Switch instrument on:
Press button > 1 s.
- 2 Connect probe and place in flue gas pipe.
- 3 Start measurement and read off measuring values.



You will also find further information about your testo 300 flue gas analyzer in the online instruction manual on the Testo website, www.testo.com, under the product-specific download.

8 Technical data

Feature	Value
Temperature measuring instrument	-40 to +1200°C
Draught measurement	-9.99 to +40 hPa
Pressure measurement	-100 to 200 hPa
O ₂ measurement	0 to 21 vol.%
CO measurement	0 to 4000 ppm
Option: CO measurement (H ₂ -compensated)	0 to 8000 ppm
Option: CO measurement with activated fresh air dilution/measuring range extension	0 to 15000 ppm
Option: CO measurement (H ₂ -compensated) with activated fresh air dilution/measuring range extension	0 to 30000 ppm
NO measurement	0 to 3000 ppm
Efficiency testing (Eta)	0 to 120%
Flue gas losses	0 to 99.9%
CO ₂ determination (calculation from O ₂)	Display range 0 to CO ₂ max.
Ambient CO measurement (internal/flue gas probe)	0 to 2000 ppm
Ambient CO measurement (external with CO probe)	0 to 500 ppm
Lifetime O ₂ -sensor	up to 72 months, depending on the load
Lifetime CO-sensor	up to 72 months, depending on the load
Lifetime NO-sensor	up to 72 months, depending on the load

General technical data

Feature	Value
Storage temperature	-20 to +50°C
Operating temperature	-5 to +45°C
Charging temperature	-0 to +45°C
Energy storage unit	3.6 V/3.5 Ah
Mains unit	5 V / 1 A
Humidity application range	15 to 90% RH, non-condensing

Feature	Value
Power supply	Energy storage unit, USB mains unit
Energy storage unit service life	10 hrs
Lifetime energy storage	> 1000 charging cycles / approx. 5 years
Protection class	IP 40
Memory	1 million measuring values
Display	5.0" touch display, HD 1280x720 pixels
Weight	Approx. 800 g
Dimensions	L: 244 mm (including probe connection) H: 59 mm W: 98 mm.
Certification	TÜV-tested according to 1st German Federal Immission Control Ordinance (BImSchV) EN 50379, Parts 1-3

8.1 Product-specific approvals

As declared in the certificate of conformity, this product complies with Directive 2014/30/EU.

The testo 300 with O₂/CO, H₂-compensated/NO gas sensors, combustion air temperature sensor, flue gas temperature sensor and differential pressure sensor (draught) is TÜV-tested in accordance with VDI 4206.

The CO sensor, H₂-compensated, is TÜV-tested in accordance with EN 50379 part 2.

The CO sensor, not H₂-compensated, is TÜV-tested in accordance with EN 50379 part 3.

For official measurements in accordance with the first German Federal Immission Control Ordinance (BImSchV) (chimney sweeps), the measuring instrument must be checked every six months by a technical testing body of the Guild of Master Chimney Sweeps or another testing body recognised by the authorities.

Please find the current country approvals in the attached [Approval and Certification](#) document.

9 Contact and support

If you have any questions or need further information, please contact your dealer or Testo Customer Service. For contact details, please visit www.testo.com/service-contact.



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