testo 300 - Combustion Analyzer

Short instructions

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

Contents

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 attention to the safety instructions and warning advice 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 for flue gas analysis on applications, such as

- residential, commercial and industrial applications (oil, gas, wood, coal)
- low-temperature and condensing boilers
- boilers, furnaces and gas heaters.

Using the instrument, these systems can be adjusted and checked for 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 performed using the instrument:

- Checking the O_2, CO and CO_2, NO, NO_x values in combustion plants to ensure optimum operation.
- Draft measurement.
- Measuring the gas flow pressure in gas heaters.
- Measuring and optimizing the flow and return temperatures of heating systems.
- Measuring the CO concentration in the ambient air.

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

5 Product description

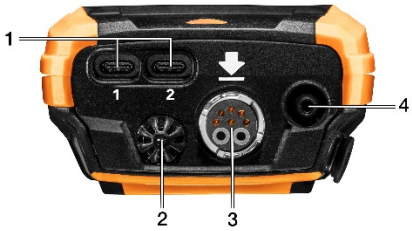
5.1 Front view

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

5.2 Rear view

1	Attachment point for carrying strap	**2**	Magnets

5.3 Connections



1	Probe connections for additional probes	**3**	Flue gas socket
2	Integrated ambient air probe	**4**	Differential pressure measurement connection

There must be no more than one extension lead (0554 1202) connected between flue gas socket and flue gas probe.

6 Commissioning

6.1 Power supply / Battery

The measuring instrument is supplied with a rechargeable battery.

Fully charge the battery before use.

If plugged in, the measuring instrument is automatically powered via the power supply.

Only charge the battery at an ambient temperature of 32 to 95°F.

6.1.1 Charge battery

1. Connect the instrument plug of the power supply to the power supply socket on the measuring instrument.
2. Connect the power plug of the power supply to an outlet.

- The charging process starts. LED in the condensate trap flashes red.
- The charging process stops automatically when battery is fully charged. LED in the condensate trap has a continuous red light.

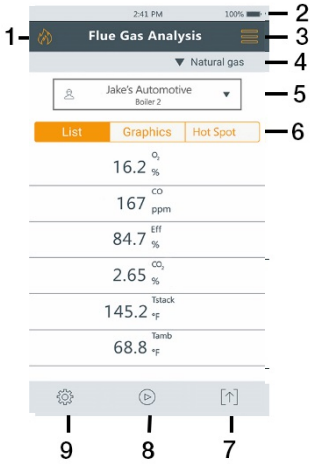
If the battery has discharged completely, the charging time at room temperature is approx. 5-6 hrs.

6.2 Switch instrument on and off

Current status	Action	Function
Instrument off	Press the button for a long time (> 3 s)	Instrument is turned on.
	When the measuring instrument is started for the first time, the setup wizard guides you through the following setting parameters step by step: - **Country version (basis of calculations)** - **Language** - **Wi-Fi** - **Date and Time** - **Own company address** - **E-mail account*** - **Product registration** 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. *Note: If you don't have your Email server information available you can skip this step.	
Instrument on	Press the button briefly (< 1 s)	Instrument is turned to standby mode. The instrument is re-activated when the button is pressed again.
Instrument off	Press the button for a long time (> 1 s)	Selection: **[OK]** Instrument is turned off or cancel the instrument being turned off with **[Cancel]**.

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

6.3 Display - user interface



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		Tests
8		Start measurement Pause measurement Stop measurement
9		**Options**

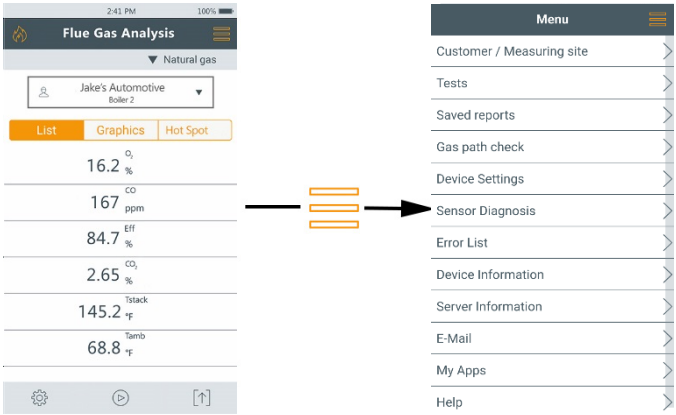
Further symbols on the user interface (without numbering)

	Refresh 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 ( )

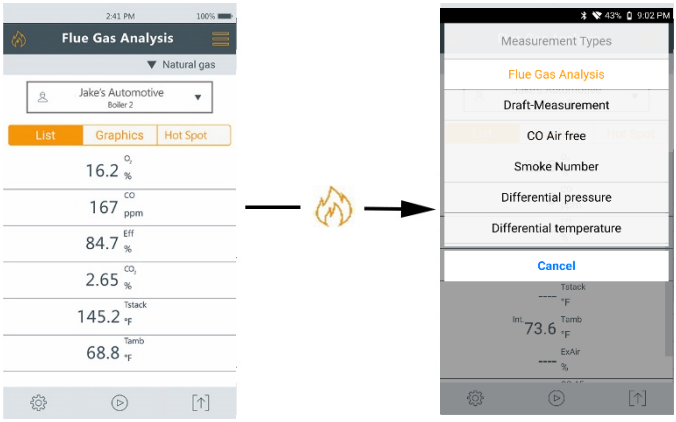


Main menu	Description
Customer / Measuring site	Create, edit and delete customer and system information.
Tests	Call up, delete and send measurements that have been performed (various formats possible).
Saved reports	Call up and delete measurement report.
Gas path check	For flawless operation of the measuring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

Main menu	Description
Device Settings	Settings - **Country version and language** - **Wi-Fi** - **Date & Time** - **My company address** - **Bluetooth®** - **Hotspot** - **Display brightness** - **CO sensor protect** - **NO2 addition** - **O2 reference** - **Alarm limits**
Sensor Diagnosis	Overview of the sensors installed and their condition.
Error List	Show error reports
Device information	Information - **Device name** - **Serial number** - **Last service date** - **Free memory** - **Operating hours** - **Operating hours since last service** - **Software version** - **Firmware version** - **Firmware date**
Server information	Information about the available server
E-Mail	Set up e-mail account and the e-mail account can be displayed.
My Apps	Additional applications - **Alarm clock** - **E-Mail** - **Gallery** - **Browser** - **Calendar** - **Pocket calculator** - **QuickSupport** - **File manager**

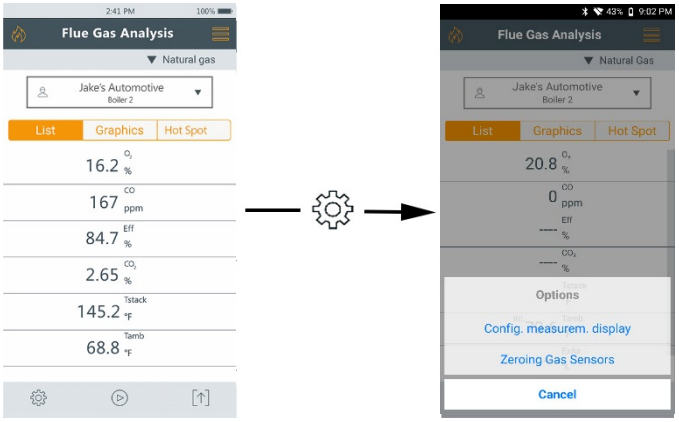
Main menu	Description
Help	Aids - Device Registration - Tutorial - Setup Wizard - Help Online - Testo Website - Update via USB

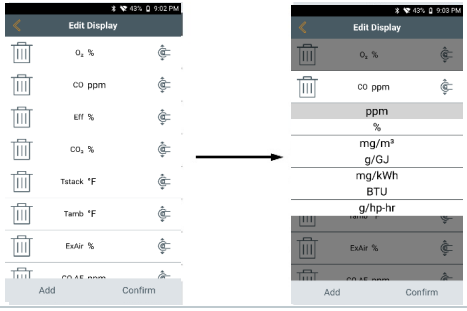
7.2 Overview of measurement types ( )



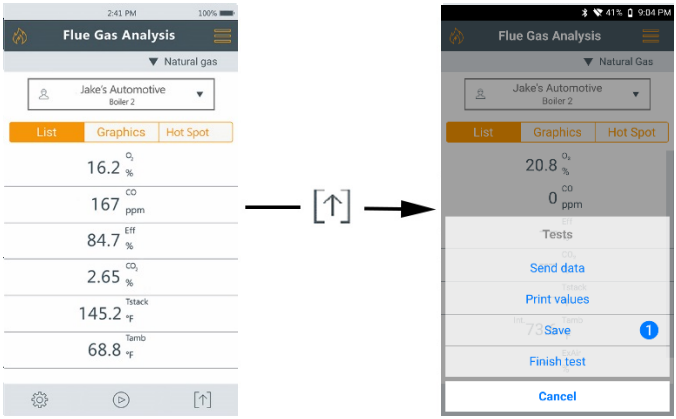
Measurement types
Flue Gas Analysis
Draft
CO Air free
Smoke Number
Differential pressure
Differential temperature
O_2 Air
Clock Meter
Oil flow calculation
CO Ambient
Pipe Commissioning
Pressure Drop test
Pretest
Flue Gas Analysis
Draft

7.3 Overview of options ( )



Options	Description
Config. measurem. view	Add, delete ( ) measurement parameters, change measurement views ( ) and units (click on (Unit). 
Zeroing Gas Sensors	Manual sensor zeroing. Menu is only available for measurements with gas sensors.

7.4 Overview of tests ([↑])



Tests	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 test	Create, save and send measurement report, including - **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 Turn instrument on:
Press button > 1 s.

2 Insert the connector plug into the flue gas socket and lock it in place by turning it slightly clockwise (bayonet lock).

3 Start measurement, the measuring values will be displayed.

You will also find further information about your testo 300 combustion 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 +2192°F
Draft measurement	-4.01 to +16.06 inH2O
Pressure measurement	-40.15 to 80.29 inH2O
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	-4 to +122°F
Operating temperature	23 to +113°F
Charging temperature	32 to +113°F
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
Protection class	IP 40
Memory	1 million measuring values
Display	5.0" touch display, HD 1280x720 pixels
Weight	Approx. 800 g
Dimensions	L: 9.6 in. (including probe connection) H: 2.3 in. W: 3.86 in.
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 O_2/CO, H_2-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, H_2-compensated, is TÜV-tested in accordance with EN 50379 part 2.

The CO sensor, not H_2-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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