



## Measurement Engineering for Heating and Installation



## Icons



Backlit display



User-friendly operation due to menu-driven functions



SoftCase or TopSafe to protect instrument or to provide instrument with protection from water ingress



Shock-proof



Infrared printer

Reliable printout of measurement results on site



Barcode reader

Used for data management, customer allocation and scheduling



RS 232 interface

For easy connection to all sector software



Battery and rechargeable battery operation possible



Battery can be recharged in instrument



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### Accessories

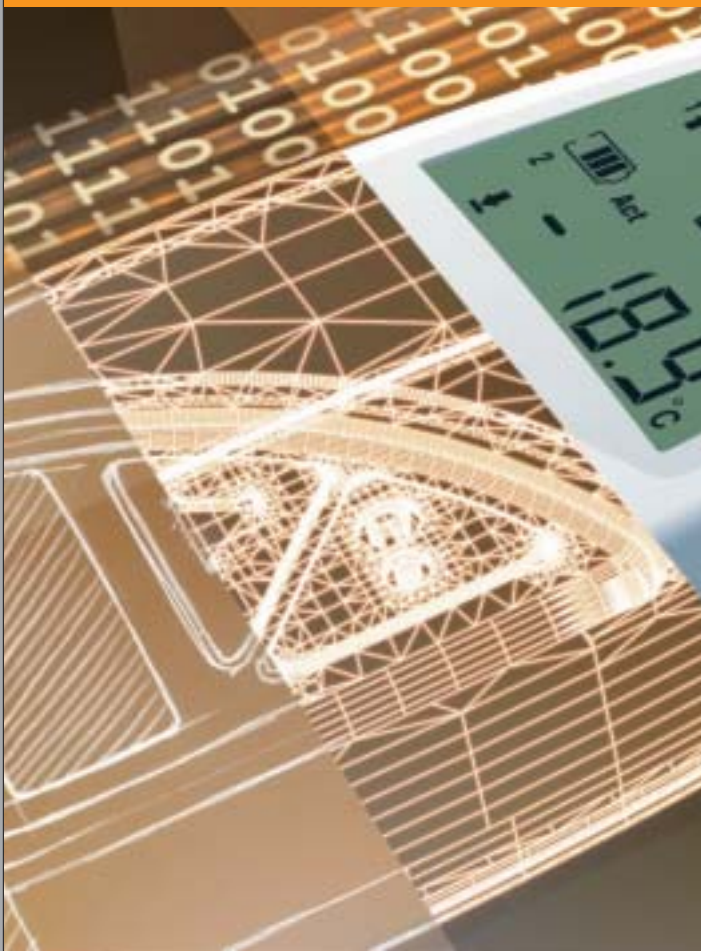
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# Combustion points under control

**New opportunities:** The market for the supply of heat to buildings is changing constantly. Solar systems, heat pumps and other technologies, integrated concepts for energy supply and electronic control systems have established themselves. The objectives remain the same - demand controlled heat supply, low energy consumption and low emissions.

Regardless of the technology involved – every furnace must function 100%; regular checks and tuning are therefore required. Our contribution: We supply the best measurement engineering. We follow all developments attentively, we are there wherever there is something going on. We recognise trends far in advance and can therefore offer well-engineered applications ahead of the competition. You have rewarded us for our commitment by making us number one worldwide in the heating engineering sector.

## Playing it safe.

Measuring instruments must be reliable and efficient. For this reason, once developed we do not regard our products as being ready for the market. Instead, we subject them to tough tests in the field. It is only

when this test is successful that we start with serial production. All measuring instruments which leave our factory undergo quality inspections.

## Spoilt for choice?

It is impossible to find another product line with so many well-engineered, mobile gas analysers as we have. We admit that that could sometimes make the decision more difficult for you but you are guaranteed that you are working with the best suited product for your measurement job. Regardless for which flue gas analyser you decide, you can be assured that the gas paths are optimised i.e. are kept as short as possible. Susceptibility and corrosion are thus avoided. The results of your measurements are made available immediately. User-friendly and intelligible operation, a well thought-out accessory and measurement case system ensure that you can work – efficiently, fast and professionally.

#### Measurement cells with added value!

The sensors specially developed for Testo have an above-average lifetime of 2-3 years. One outstanding feature are measuring instruments in which you can exchange the measurement cell yourself – without the need for test gas calibration. Back in operation immediately – couldn't be quicker.

#### The cheapest measuring instrument sometimes turns out to be the most expensive...

Heating problems in Winter. A true emergency! And your flue gas analyser breaks down today of all days! This is where we come in. We are proud of the top quality service we provide.

#### Learning changes

What was that? What flue gas flows are permitted according to the regulations governing wood furnaces? We offer in-depth documentation and leaflets on Testo Measurement Engineering, current standards and guidelines and their implementation.

## “Is there a heating fitter in R&D?”



Edgar Mesam,  
Mesam GmbH  
Heating and Plumbing

Edgar Mesam laughs astutely when asked about the quality of our products. The committed owner of a heating and plumbing business in Bannholz has been a customer of Testo for many years. As a heating fitter, he is committed to protecting the environment. We asked him to speak about his experience with Testo products.

Edgar Mesam:

“We are mainly involved in the maintenance and upkeep of existing systems. It is not as spectacular as the installation of renewable energy technology (which we also do, of course) but the potential for saving energy is huge. A defective system can use more than 50% more energy compared with a system in good working order and just an incorrectly adjusted system can mean increased power consumption of 20 to 30%.

My most important tool for adjusting heating systems is first-class measurement engineering which I get from Testo – all-inclusive, from the flue gas analyser to the fiberscope and everything that goes with it. In my own experience – and I have been in the business for 20 years – no other manufacturer meets the requirements in the field like Testo does with its products.

Another important point: With Testo, I don't have to grapple with the measurement engineering I get, I can select what I need for my requirements from the wide range of equipment and accessories within an instrument line.

Keep up the good work! I'm already looking forward to the newest innovations which have always convinced me up to now!



# The right flue gas analyser for ev



testo 325

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testo 300 XXL

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# Every requirement

Top instrument for extreme demands

testo 300 XXL

Convenient starter instrument for heating fitters and technicians

Pro analyser for customer service and service technicians

Pro analyser for heating technicians and inspectors

testo 330-1

testo 330-2

testo 330-3

Starter instrument with proven efficiency

Introduction to professional maintenance

testo 325 M

testo 325 XL

Basic adjustments on oil and gas burners

testo 325-2

Inspections on gas heaters

testo 325-3

## Outline

	testo 325-2	testo 325-3	testo 325 M	testo 325 XL	testo 330-1	testo 330-2	testo 330-3	testo 300 XXL
Adjusting efficiency: TÜV approved O <sub>2</sub> , CO <sub>2</sub> , qA, °C, λ	■		■	■	■	■	■	■
Combustion quality: CO flue gas								
Up to 2000 ppm, for gas systems		■						
Up to 4000 ppm, for gas or oil systems with low pollution			■	■	■			
8000 ppm, for oil systems with a high pollution level						■	■	■
30,000 ppm, for oil systems with extreme pollution and solid fuel systems						■	■	Opt.
NO for low NOx inspections					Opt.	Opt.	Opt.	Opt.
Flue draught	■	■	■	■	■	■	■	■
Differential temperature, adjusting flow and return temperatures	■	■	■	■	■	■	■	■
Protection of CO measurement cell via switch-off function							■	Autom.
Differential pressure, for adjustment of pressure ratios in gas systems, mbar/hPa	40	40	40/200	40/200	200	200	200	80/1000
Probe for detecting gas leaks					■	■	■	■
Protection: Probe for measuring ambient CO					■	■	■	■
Printout with date and time	■	■	■	■	■	■	■	■
Audible/optical alarm					■	■	■	■
Immediate stand-by: Measurement cells are exchanged without test gas adjustment					■	■	■	■
Allocation and processing of information (analysis software)					■	■	■	■
Built-in data memory, no. of data blocks				20	200	200	400	4000
Transmission of readings					USB	USB	USB	RS 232
Printer connection with print text					■	■	■	■
Barcode connection					■	■	■	■
State inspection: TÜV approved CO				■		■	■	■



## testo 325 – Introduction to Professional Flue Gas Analysis

Do you manage to get home by 5pm every day?



Hans-Dieter Guth,  
Market Manager  
Contractors BU,  
Germany

Probably not, because your job expects above-average dedication. You also need partners who won't let you down. We are leading the way with our quality service.

Check it out for yourself.

Do you need an accessory, do you have a question about measuring or do you need a replacement instrument? – Testo Service employees are at your service in many locations – also near you. Good to know when the situation requires.



Condensate trap in instrument



Large, backlit display



Gas pressure measurement with additional socket for +/-



User-friendly operation

## testo 325-2 / 325-3

The testo 325-2 and -3 instruments offer the standard functions of flue gas analysis for the basic adjustment of oil and gas burners.

testo 325-2 measures O<sub>2</sub> in flue gas, flue draught and calculates flue gas loss and efficiency.

testo 325-3 measures the CO level (up to 2000 ppm), draught and gas flow pressure.

- TÜV approved O<sub>2</sub>, CO<sub>2</sub> and temperature measurement function
- Measures flow/return temperature with separate probes;  $\Delta T$  display (325-2/3)
- Data documentation printed on site
- Magnetic SoftCase for protection and positioning

## testo 325 M / 325 XL

testo 325 M and XL instruments supply all important parameters (O<sub>2</sub>, CO, °C) at a glance.

They enable differential temperature and differential pressure measurements (40/200 hPa switchable) and fulfill all the requirements for the adjustment, maintenance and servicing of gas and clean oil burners (CO to 4000 ppm).

- O<sub>2</sub> TÜV approved
  - Data documentation printed on site
- testo 325 XL: Additional features:**
- TÜV approved CO measurement function
  - Cache for
    - CO level, environment
    - O<sub>2</sub> concentration, ingoing air
  - Specific factors can be set for 6 fuels
  - Memory for 20 data blocks
  - Battery recharging in instrument

### testo 325 M

O<sub>2</sub>, CO<sub>2</sub>, °C, CO  
Flue gas analyser incl. battery and calibration protocol

Part no. 0632 0322

### testo 325 XL

O<sub>2</sub>, CO<sub>2</sub>, °C, CO, H<sub>2</sub>  
Flue gas analyser incl. rechargeable battery and calibration protocol

Part no. 0632 0321

### testo 325-2

O<sub>2</sub>, draught, °C measurement  
Flue gas analyser, incl. batteries and calibration protocol

Part no. 0563 0330

Technical data	testo 325-2/-3	testo 325 M	testo 325 XL
<b>Temperature measurement</b>			
Meas. range	-40 to +600 °C	-40 to +600 °C	-40 to +600 °C
<b>Draught/Pressure measurement</b>			
delta P1	±40 hPa	±40 hPa	±40 hPa
delta P2		±200 hPa	±200 hPa
<b>Efficiency measurement (Eta)</b>			
Meas. range	0 to 120 %	0 to 120 %	0 to 120 %
<b>Flue gas loss (qA)</b>			
Meas. range	0 to 99.9% qA	0 to 99.9% qA	0 to 99.9% qA
<b>O<sub>2</sub> measurement</b>			
Meas. range	0 to 21 Vol. % O <sub>2</sub>	0 to 21 Vol. % O <sub>2</sub>	0 to 21 Vol. % O <sub>2</sub>
<b>CO<sub>2</sub> measurement</b>			
Display range	0 to CO2max	0 to CO2max	0 to CO2max
<b>CO measurement</b>			
Meas. range	0 to 2000 ppm	0 to 4000 ppm	0 to 4000 ppm



### Time for the essentials

"To be quite honest, the phones are usually quiet between 6 and 7pm but the few who do call are delighted when somebody answers the phone. That's why I'm happy to be here. Testo, at your service!"

Regina Marx  
Sales

## testo 325 M Basic Set Starter instrument for flue gas analysis

testo 325 M, flue gas analyser incl. battery and calibration protocol  
230 V power unit for mains operation and recharging batteries  
Compact flue gas probe, 180 mm immersion depth  
Ambient air probe, 190 mm immersion depth  
System case for measuring instrument, probe and accessories  
SoftCase made of elastic plastic incl. magnetic plate and carrier strap  
Testo printer

Part no. 0563 0332

## testo 325 XL Basic Set Professional flue gas analysis

testo 325 XL, flue gas analyser incl. rech. battery and calibration protocol  
230 V power unit for mains operation and to recharge batteries  
TUV approved flue gas probe, 180 mm immersion depth  
Ambient air probe, 190 mm immersion depth  
System case for instrument, probe and accessories  
SoftCase made of elastic plastic incl. magnetic plate and carrier strap  
Smoke tester

Part no. 0563 0334

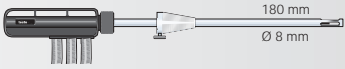

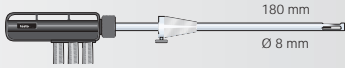



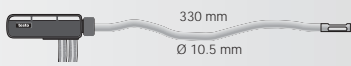
## testo 325-3 Set Flue gas inspection instrument


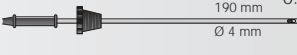


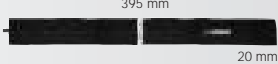
testo 325-3 flue gas analyser incl. batteries and calibration protocol  
Flue gas probe, 180 mm immersion depth  
Case

Part no. 0563 0340

## Accessories

Printer and Accessories	Part no.
Testo printer with cordless IRDA and infrared interface, 1 roll of thermal paper and 4 round batteries, For printout of reading on site	0554 0547
Spare thermal paper for printer (6 rolls)	0554 0569
Spare thermal paper for printer (6 rolls), permanent ink, Measurement data documentation legible for up to 10 years	0554 0568
Additional Accessories and Spare Parts	Part no.
Power unit 230 V/ 8 V/ 1 A, for instrument (European plug), For mains operation and battery recharging	0554 1084
Hose connection set for gas pressure measurement to heating systems, incl. silicone hoses and T-pieces, For separate gas pressure measurement	0554 0315
Pressure set for gas pressure measurement on heating systems	0554 0449
Spare particle filter (10 off)	0554 0040
Smoke tester with oil, soot sheet, for measuring soot in flue gas	0554 0307
Filter paper to determine smoke number, 40 strips for approx. 200 measurements	0554 0308
Transport and Protection	Part no.
SoftCase made of flexible plastic incl. magnetic plate and carrying strap, protects analyser from dirt and impact (testo 325 M/XL)	0516 2572
System case for measuring instrument, probe and accessories, easily attached to other system cases	0516 0326
Tools system case with tools section, without contents, attachable to system case 0516 0326	0516 0329
Product system case with small plastic boxes, without contents, attachable to system case 0516 0326	0516 0328
Universal system case without sections, attachable to system case 0516 0326, For easy storage of analyser and additional accessories	0516 0331
Transport case (plastic) for instrument, probes and accessories, For safe and orderly storage	0516 3250
SoftCase made of elastic plastic with magnetic plate, carrier strap, Protects instrument from dirt and impact (testo 325-2/-3)	0516 2570

Suitable probes at a glance	Illustration	Part no.
Compact flue gas probe, 180 mm immersion depth incl. probe stop for positioning, NiCr-Ni thermocouple up to +500°C, 1.5 m hose		0600 9544
Compact flue gas probe, 300 mm immersion depth incl. probe stop for positioning, NiCr-Ni thermocouple up to +500°C, 1.5 m hose		0600 9542
TÜV approved flue gas probe, 180 mm immersion depth, corresponding to the latest instrument test guidelines for measurements on atmospheric gas systems, 2.2 m hose		0600 9543
TÜV approved flue gas probe, 300 mm immersion depth, corresponds to the latest instrument testing guidelines, for measurements on atmospheric gas systems, 2.2 m hose		0600 9546
Dual wall clearance probe, sickel shaped supply O2 probe for measuring the O2 level in systems independent of ambient air		0632 1244 For testo 325 XL only
High temperature probe, TI thermocouple up to 1000°C, 300 mm immersion depth, incl. probe stop, heat protection screen, 2.2 m hose		0600 8540
Flexible flue gas probe, 330 mm immersion depth, NiCr-Ni thermocouple up to +500°C, 2.2 m hose		0600 9440

Temperature probes	Illustration	Meas. range	Accuracy	t <sub>99</sub>	Conn.	Part no.
Quick-action surface probe with sprung thermocouple strip, for measurements on floor heating systems, radiators, insulations...		-60 to +300 °C	Class 2	3 s	Fixed cable	0602 0392
Ambient air probe, immersion depth 190 mm, with probe stop, magnetic clip, Tmax +100°C, for ambient air temperature measurement in systems which are dependent on/independent of ambient air		0... +100 °C				0600 9788
Ambient air probe, immersion depth 60 mm, with probe stop, magnetic clip, Tmax +100°C, for dual wall clearance temp. meas. in systems with outside primary air intake		0 to +100 °C		30 s		0600 9798
Clamp probe for measurements on pipes, pipe diameter 15 to 25 mm (max. 1"), meas. range short-term up to +130°C		-50 to +100 °C	Class 2	5 s	Fixed cable	0602 4692
Pipe wrap probe with Velcro strip, for temperature measurement on pipes with diameter up to max. 120 mm, Tmax +120°C		-50 to +120 °C	Class 1	90 s	Fixed cable	0628 0020

## testo 325 M – Set with all the tools you need for maintenance

### testo 325 M – Set with all the tools you need for maintenance

**testo 325 M**, flue gas analyser incl. battery and calibration protocol

**230 V power unit** for mains operation and recharging batteries

**Compact flue gas probe**, 180mm immersion depth

**Ambient air probe**, 190mm immersion depth

**System case** for measuring instrument, probe and accessories

**SoftCase** made of elastic plastic incl. magnetic plate and carrier strap

**Testo printer** for printouts on site

**testo 382 multimeter** for testing electrical connections

**Smoke tester** incl. oil, soot sheets and reference scale

**Magnetic tester** for testing reversing valves

**Nozzle spanner** for changing nozzles

**Pressure test set** for oil pressure and vacuum

**testo 506 pressure meter** for measuring gas pressure

**testo 317-1 spillage detector** for detecting escaping flue gas

**testo 317-2 gas leak stick** for locating gas leaks



The complete set in a robust case

Everything is stored ready to hand and easy to find in a robust and practical Testo system case: testo 325 M flue gas analyser, power unit, 180 mm compact flue gas probe, 190 mm ambient air probe, SoftCase, Testo printer, multimeter, smoke tester, magnetic tester, nozzle spanner, pressure test set, pressure meter, spillage detector, gas leak stick and service labels – i.e. fully equipped for maintenance on oil burners and gas heaters.

Part no. 0563 0333

## testo 330 – Flue gas analysis with increased convenience and safety

### How many degrees is it really?



Knut Hoyer,  
Head of Competence Center for Gas Analysis

How sure can you really be that your analyser measures exactly what it should be measuring? Our certified DKD laboratories are unbeatable in terms of

accuracy and set the values for all Testo measuring instruments – That's what true measurement efficiency is all about.

The competence of our engineers is held in high esteem by expert groups and committees in Berlin and Brussels where they are involved in the developments of future guidelines in their capacity as representatives of industry.

A comprehensive exchange of knowledge and experience with official measurement institutes around the world (e.g. DKD) ensures that your Testo measuring instrument can hold up to any comparison. Indeed, these efforts do have an objective: whoever uses Testo measurement engineering, can be assured that he is using the industrial standard.

Of further benefit to you: We know today about the guidelines and test specifications we will be faced with in the future.



#### User-friendly operation

Robust quick-action connection for all gas paths



#### Increased safety

Qualitative status of functions and wearing parts via instrument diagnosis



#### More convenience

Easy-to-change rech. batt. and meas. cells, rech. batt. life > 6 hours, meas. cell life > 3 years



#### Absolutely robust

High CO display range up to 30,000 ppm on account of patented dilution (testo 330-2/-3)



## The convenient starter analyser for heating technicians and fitters

### testo 330-1

The major benefits of the flue gas analyser lie in its dialog functions: Instrument diagnosis provides information at the touch of a button about the qualitative status of functions such as on the level in the condensate trap but also on wearing parts, for example, the state of the measurement cells. Maintenance intervals are displayed, making your work easier to plan. The times in which an analyser lets the user down belong to the past.

Modular probes, such as  $\Delta T$ ,  $\Delta P$ , flue gas are recognised automatically by the analyser and the measurement results appear immediately in the menu.

The probes have a quick connection function ensuring that all gas paths are connected correctly. The single cable is rigid, indestructible and saves space. The particle filter is positioned in the probe handle. Probe shafts with different lengths and diameters can be easily attached to the probe handle.

- Instrument diagnosis
- $\Delta T$  measurement, return/flow
- Ambient CO measurement
- Ambient CO<sub>2</sub> measurement
- Detect gas leaks with the gas leak detection probe
- $\Delta P$  measurement for gas pressure
- Gas/oil flow rate measurement
- 200 measurement data sets incl. systems number
- IRDA interface for data transfer to PDA/Notebook
- USB interface for data transfer to PC



Large, backlit graphics display



Foolproof probe connection



Flue gas analysis on atmospheric gas burner systems



#### testo 330-1

Flue gas analyser incl. rechargeable battery and calibration protocol

Part no. 0632 3301

### testo 330-1 Flue gas analyser set for heating fitters and technicians

testo 330-1 flue gas analyser incl. rechargeable battery and calibration protocol

100-240 V mains unit for mains operation or battery recharging in the instrument

Modular flue gas probe, immersion depth: 300 mm,  $\varnothing$  8 mm

Combustion air temperature probe, immersion depth: 190 mm

Hose connection set for separate gas pressure measurement

IRDA printer

Basis system case for instrument, probes and accessories

Part no. 0563 3314 70

See page 14+15 for Accessories Ordering Data

#### Technical data

Temperature	-40 to +1200 °C
Draught measurement	-9.99 to +40 hPa
Pressure measurement	0 to 200 hPa
O <sub>2</sub> measurement	0 to 21 Vol. %
CO measurement (without H <sub>2</sub> compensation)	0 to 4000 ppm
Efficiency measurement (Eta)	0 to 120 %
Flue gas loss	0 to 99.9 %
CO <sub>2</sub> measurement	Display range 0 to CO <sub>2</sub> max
Option: NO <sub>low</sub> measurement	0 to 300 ppm
Option: NO measurement	0 to 3000 ppm
Ambient CO measurement (with CO probe)	0 to 500 ppm
Gas leak measurement for combustible gases (with gas leak detection probe)	Display range 0 to 10,000 ppm CH <sub>4</sub> / C <sub>3</sub> H <sub>8</sub>
Ambient CO <sub>2</sub> measurement (with ambient CO <sub>2</sub> probe)	0 to 1 Vol. % 0 to 10000 ppm

#### General Technical data

Memory	200 sites
Weight	600 g (without rechargeable battery)
Dimensions	270 x 90 x 65 mm
Storage temp.	-20 to +50 °C
Oper. temp.	-5 to +45 °C
Display	Graphics display: 160 x 240 pixel
Power supply	Rech. block: 3.7V/2.2Ah Power: 6V/1.2A
Warranty	Analyser/cells/probe: 2 years, rech. batt.: 1 year

## Pro flue gas analyser for customer service and service technicians

### testo 330-2

The analyser is a reliable companion, regardless of whether it is for breakdowns or emergencies, when monitoring legal limits or during daily maintenance assignments. It supports the rapid change between measurement and maintenance. The probe can remain positioned in the flue during the initialisation phase of the measurement cells. Calibration is completed in just 30 seconds. Fuel selection, for example, can also be carried out simultaneously and the analyser is ready for operation. Instrument diagnosis provides information at the touch of a button about the qualitative status of functions such as on the level in the condensate trap but also on wearing parts, for example, the state of the measurement cells. NOlow measurements can be carried out on lowNOx burners.

For applications in extreme conditions, such as highly contaminated burners, Testo's patented technology guarantees efficient display of the CO level up to 30,000 ppm. The measurement cell is not subjected to any more strain than during normal measurements.

- Instrument diagnosis
- Automatic analyser leak test
- $\Delta T$  measurement, flow/return
- Ambient CO measurement
- Ambient CO<sub>2</sub> measurement
- Detection of gas leaks using gas leak detection probe
- $\Delta P$  measurement for gas pressure
- Gas/oil flow measurement
- Initialisation of flue gas sensors without removing probe
- 200 data sets incl. object address and systems number
- IRDA interface for data transfer to PDA/Notebook
- USB interface for data transfer to PC
- Interface to furnaces



Display of CO level up to 30,000 ppm



Easy-to-access particle filter in handle



Flue gas analysis on oil and gas heating systems

#### testo 330-2

Flue gas analyser incl. rechargeable battery and calibration protocol

Part no. 0632 3302

Technical data	
Temperature	-40 to +1200 °C
Draught measurement	-9.99 to +40 hPa
Pressure measurement	0 to 200 hPa
O <sub>2</sub> measurement	0 to 21 Vol. %
CO measurement (H <sub>2</sub> compensated)	0 to 8000 ppm from 8000 ppm display range 8000 to 30,000 ppm (automatic dilution)
Efficiency measurement (Eta)	0 to 120 %
Flue gas loss	0 to 99.9 %
CO <sub>2</sub> measurement	Display range 0 to CO <sub>2</sub> max
Option: NO <sub>low</sub> measurement	0 to 300 ppm
Option: NO measurement	0 to 3000 ppm
Ambient CO measurement (with CO probe)	0 to 500 ppm
Gas leak measurement for combustible gases (with gas leak detection probe)	Display range 0 to 10,000 ppm CH <sub>4</sub> / C <sub>3</sub> H <sub>8</sub>
Ambient CO <sub>2</sub> measurement (with ambient CO <sub>2</sub> probe)	0 to 1 Vol. % 0 to 10000 ppm
General Technical Data	
Memory	200 sites
Weight	600 g (without rechargeable battery)
Dimensions	270 x 90 x 65 mm
Storage temp.	-20 to +50 °C
Oper. temp.	-5 to +45 °C
Display	Graphics display 160 x 240 pixel
Power supply	Rechargeable battery: 3.7 V / 2.2 Ah Mains unit 6 V / 1.2 A
Warranty	Analyser/cells/probe: 2 years, rech. batt.: 1 year

### testo 330-2 Professional set for customer service and service technicians

- testo 330-2 flue gas analyser incl. rechargeable battery and calibration protocol
- 100-240 V mains unit for mains operation or battery recharging in the analyser
- Modular flue gas probe, immersion depth: 300 mm,  $\varnothing$  8 mm
- Combustion air temperature probe, 190 mm long
- Hose connection set for separate gas pressure measurement
- IRDA printer
- Smoke tester incl. oil, soot sheet and reference scale
- Basic system case for analyser, probes and accessories

Part no. 0563 3315 70

See page 14+15 for Accessories Ordering Data

## Professional flue gas analyser for heating technicians and inspectors

### testo 330-3

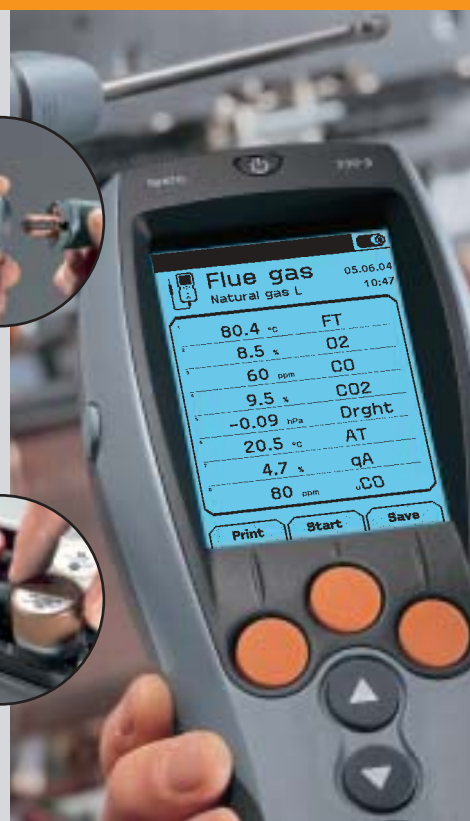
The analyser offers the heating technician everything he requires to competently carry out his inspections: the analyser has a special menu and automatic mean calculation. The course of the temperature during hot spot detection is shown in graphs on the display. Draught measurement is also shown in the same menu; the probe can remain positioned in the flue during the initialisation phase. This improves measurement accuracy when checking the systems and helps to save you time. CO switch-off can be carried out manually if necessary.

Instrument diagnosis provides you with information about the qualitative status of functions and wearing parts. Included is the quality check on measurement cells, filter status, level display in the condensate trap, leak-proofness of instrument, pump capacity, rechargeable battery status and the date of the last maintenance.

- Instrument diagnosis
- Automatic instrument leak test
- $\Delta T$  measurement, flow/return
- Ambient CO<sub>2</sub> measurement
- $\Delta P$  measurement for gas pressure
- Gas/oil flow measurement
- Recognition of probe connected
- Initialisation of pressure sensor for draught measurement without removing probe
- 400 data sets incl. object address and systems number
- IRDA interface for data transfer to PDA/Notebook
- USB interface for data transfer to PC
- ZIV driver for all standard industrial software
- Menu with manual CO switch-off function and qA mean value

Easy change probe shaft with menu recognition

TÜV approved easy-to-change measurement cells



Fast checking of flue gas values in heating units

#### testo 330-3

Flue gas analyser incl. rechargeable and calibration protocol

Part no. 0632 3303

#### testo 330-3 professional analysis set for heating technicians and inspectors

- testo 330-3 flue gas analyser incl. rechargeable battery and calibration protocol
- 100-240 V mains unit for mains operation or battery recharging in the analyser
- Modular flue gas probe, immersion depth: 300 mm,  $\varnothing$  8 mm
- CO multi-hole probe shaft suitable for modular flue gas probe
- Combustion air temperature probe, 190 mm long
- Smoke tester incl. oil, soot sheet and reference scale
- Basic system case for instrument, probes and accessories

Part no. 0563 3316 70

See page 14+15 for Accessories Ordering Data

#### Technical data

Temperature	-40 to +1200 °C
Draught measurement	-9.99 to +40 hPa
Pressure measurement	0 to 200 hPa
O <sub>2</sub> measurement	0 to 21 Vol. %
CO measurement (H <sub>2</sub> compensated)	0 to 8000 ppm from 8000 ppm display range 8000 to 30000 ppm (automatic dilution)
Efficiency measurement (Eta)	0 to 120 %
Flue gas loss	0 to 99.9 %
CO <sub>2</sub> measurement	Display range 0 to CO <sub>2</sub> max
Option: NO <sub>low</sub> measurement	0 to 300 ppm
Option: NO measurement	0 to 3000 ppm
Ambient CO measurement (with CO probe)	0 to 500 ppm
Gas leak measurement for combustible gases (with gas leak detection probe)	Display range 0 to 10,000 ppm CH <sub>4</sub> / C <sub>3</sub> H <sub>8</sub>
Ambient CO <sub>2</sub> measurement (with ambient CO <sub>2</sub> probe)	0 to 1 Vol. % 0 to 10000 ppm

#### General Technical Data

Memory	400 sites
Weight	600 g (without rechargeable battery)
Dimensions	270 x 90 x 65 mm
Storage temp.	-20 to +50 °C
Oper. temp.	-5 to +45 °C
Display	Graphics display 160 x 240 pixel
Power supply	Rechargeable block: 3.7 V / 2.2 Ah Mains unit: 6 V / 1.2 A
Warranty	Analyser/cells/probe: 2 years, Rech. batt.: 1 year



## Accessories for testo 330-1/-2/-3

### Versatile infrared printer

The IRDA printer – cordless with infrared interface – saves data for printing which saves time since the analyser is ready to operate immediately after data transfer. The printer can be used anywhere.



Testo printer with cordless IRDA and infrared interface, 1 roll of thermal paper and 4 round batteries

Part no. 0554 0547

IRDA printer saves data – Instrument is ready to operate immediately after data transfer

### Analysis and configuration software

- Clears memory in analyser
- System management/Address editing
- Create barcode
- Instrument diagnosis
- Instrument mode selection
- Configuration of analyser, e.g. date/time, alarm thresholds etc.
- Online measurement
- Export and file saved measurements



Software

Part no. 0554 3332

Software with analysis and graphics functions, online measurement. Also order USB connection cable.

### Rechargeable battery

testo 330 has the practical advantage that the testo rechargeable batteries can be recharged outside as well as inside the analyser. The lithium ion rechargeable battery is very compact and has a lifetime of more than six hours. The rechargeable battery can be changed quickly and easily.



Spare rech. batt. w/ charging station

Part no. 0554 1087

Spare battery w/ charging station

### Cases

The case system

- The interlocking case system makes it easy for the contractor to transport his tools
- The system case, particularly robust, made of ABS plastic with plastic foam inserts
- Unlimited extension with the Testo case system



Basic system case

Part no. 0516 3330

Basic system case, for storing analyser, probes and accessories

### Instruments / Options / Upgrades

	Part no.
testo 330-1 Flue gas analyser incl. rechargeable battery and calibration protocol	0632 3301
testo 330-2 Flue gas analyser incl. rechargeable battery and calibration protocol	0632 3302
testo 330-3 Flue gas analyser incl. rechargeable and calibration protocol	0632 3303
Option: Fine draught measurement, Resolution 0.1 Pa, measurement range to 100 Pa (instead of the standard draught measurement)	0440 3921
Option: Zero initialisation, Probe can remain in flue during initialisation (testo 330-2)	0440 3330
Option: Gas zeroing, Probe can remain in flue during initialisation (testo 330-3)	0440 3331
Option: NO meas. cell, meas. range 0 to 3000 ppm, 1 ppm resolution	0440 3922
Upgrade: NO meas. cell, meas. range 0 to 3000 ppm, 1 ppm resolution	0554 3922
Option: NOlow meas. cell, meas. range 0 to 300 ppm, 0.1 ppm resolution	0440 3931
Upgrade: NOlow meas. cell, meas. range 0 to 300 ppm, 0.1 ppm resolution	0554 3931

### Accessories

	Part no.
100-240 V mains unit, for mains operation or batt. recharging in analyser	0554 1086
Spare rech. batt. w/ charging station	0554 1087
Testo printer with cordless IRDA and infrared interface, 1 roll of thermal paper and 4 round batteries	0554 0547
Spare thermal paper for printer (6 rolls), permanent ink	0554 0568
Barcode reader, to read in customer number on site	0554 0461
Barcode labels, self-adhesive (1200 off)	0554 0411
Adhesive pockets (50 off) for printout, paper barcode labels...	0554 0116
Smoke tester with oil, soot sheet, for measuring soot in flue gas	0554 0307
Hose connection set for separate gas pressure measurement	0554 1203
Differential temperature set consisting of 2 pipe clamp probes and adapter	0554 1204
Spare particle filter (10 off)	0554 3385
Analysis software, shows measurement in form of diagrams, tables and manages customer data	0554 3332
USB connection cable, instrument to PC	0449 0047
ISO calibration certificate/Flue gas	0520 0003

## Accessories for testo 330-1/-2/-3

Cases		Part no.
Basic system case for analyser, probes and accessories		0516 3330
Basic system case with two levels for analyser, probes and additional accessories		0516 3331
Product system case with small plastic boxes, without contents, attachable to basic system case		0516 0328
Tools system case with tools section, without contents, attachable to basic system case		0516 0329
Versatile system case without sections, attachable to basic system case		0516 0331
Measurement case (leather) with drawers for instruments and accessories		0516 0303
Spare measurement cells		Part no.
Spare O <sub>2</sub> measurement cell		0390 0092
Spare CO measurement cell (without H <sub>2</sub> compensation) (testo 330-1)		0390 0095
Spare CO measurement cell (H <sub>2</sub> compensated) (testo 330-2/-3)		0390 0109
Spare NO <sub>low</sub> measurement cell 0 to 300 ppm		0390 0094
Spare NO measurement cell 0 to 3000 ppm		On request
Probes		Part no.
Flue gas probe 180 mm long, Ø 8 mm, Tmax 500 °C	<p>Modular flue gas probes, available in 2 lengths, incl. probe stop for positioning, NiCr-Ni thermocouple, 2.2 m hose and particle filter</p>	0600 9760
Flue gas probe 300 mm long, Ø 8 mm, Tmax 500 °C		0600 9761
Flue gas probe 180 mm long, Ø 6 mm, Tmax 500 °C		0600 9762
Flue gas probe 300 mm long, Ø 6 mm, Tmax 500 °C		0600 9763
Probe accessories		Part no.
Probe shaft 180 mm long, Ø 8 mm, Tmax 500 °C		0554 9760
Probe shaft 180 mm long, Ø 6 mm, Tmax 500 °C		0554 9762
Probe shaft 300 mm long, Ø 8 mm, Tmax 500 °C		0554 9761
Probe shaft 300 mm long, Ø 6 mm, Tmax 500 °C		0554 9763
Probe shaft 300 mm long, Ø 8 mm, Tmax 1000 °C		0554 8764
Probe shaft 700 mm long, Ø 8 mm, Tmax 1000 °C		0554 8765
Flexible probe shaft 330 mm long, Ø 10 mm, Tmax 500 °C		0554 9764
Multi-hole probe shaft, 300 mm long, Ø 8 mm, for mean CO calculation		0554 5762
Hose extension, 2.80 m, extension cable for probe and analyser		0554 1202
Cone 8 mm, steel, with spring clamp and grip, Tmax 500 °C		0554 3330
Cone 6 mm, steel, with spring clamp and grip, Tmax 500 °C		0554 3329
Additional probes		Part no.
Dual wall clearance probe		0632 1260
Gas leak probe, available from December 2004		0632 3330
Ambient CO probe		0632 1247
Ambient CO <sub>2</sub> probe		0632 1240
Connection cable		0430 0143
Combustion air temperature probe		Part no.
Combustion air temperature probe, immersion depth 300 mm		0600 9791
Combustion air temperature probe, immersion depth 190 mm		0600 9787
Combustion air temperature probe, immersion depth 60 mm		0600 9797
Additional temperature probes		Part no.
Mini ambient air probe		0600 3692
Pipe wrap probe for pipes with diameter of up to 2", for flow/return temp. meas. in hydronic systems		0600 4593
Quick-action surface probe		0604 0194
Connection cable		0430 0143

## testo 300 XXL – Top equipment for extreme maintenance requirements

### Experts are our favourite customers



Detlef Higgelke,  
Head of Testo  
AG Academy

...because they know what they are doing. We offer you our support with our field-oriented trainings on measurement procedures, and on physical cohesions.

Even more important is the exchange with other specialists from your branch. After all, we are dealing with your competence and your professional routine when using our instruments.

By the way: 98% of our training participants fully recommend our seminars and training.

### testo 300 XXL

Using the testo 300 XXL measurement system it is possible to carry out all measurement jobs on all gas, oil and solid fuel furnaces at highest flexibility (CO is optional up to 30000 ppm).

The measurement system is made up of an analysis box for flue gases and a control unit which also serves as a hand-held instrument for additional ambient measurements.

- Automatic CO fresh air rinse
- Hot spot search during the zeroing phase
- Memory: 4000 data blocks
- Built-in printer
- 8 user defined function buttons
- Adjustable timer with alarm function
- Touchscreen (optional)
- NO<sub>x</sub> (NO, NO<sub>2</sub>) measurement



Removable control unit



Stable connections for  
pressure and velocity  
measurement



Built-in printer



Accessories and Spare parts	Part no.
Power unit 230 V/ 8 V/ 1 A, for instrument (European plug). For mains operation and battery recharging	0554 1084
Touch screen with pen (available only with original order)	0440 0559
Cable, coiled, 2m, connects control unit and analysis box	0449 0052
NO measuring module, 0 to 3000 ppm, built into analyser box	0440 3935
NO <sub>2</sub> measuring module, built into analyser box	0440 3926
CO solid fuel measurement set consisting of gas preparation, strong pump and measuring range extension module	0440 0567
CO solid fuel measurement upgrade set (available from service point)	0554 0567
Hose connection set for gas pressure measurement to heating systems, incl. silicone hoses and T-pieces	0554 0315
Pressure drop test set 200 mbar, incl. manual bulb pump, hoses, T-fitting w/ valve, conical test stopper 1/2"	0554 3153
Test pump to produce test pressure	0554 3157

Spare thermal paper for printer (6 rolls)	0554 0569
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Transport and Protection	Part no.
Carrying strap set for analysis box and hand-held analyser	0440 2545
Measurement case (leather) with drawers for analysers and accessories	0516 0307

Software and Accessories	Part no.
Configuration and adjustment software for instrument programming	0554 0507
Analysis software for showing measurements in form of diagrams, tables and for customer data management	0554 0508
RS232 cable	0409 0178

Probes	Part no.
TÜV approved flue gas probe, 180 mm immersion depth, up to +500°C, corr. to the latest instr. test guidelines, also for meas. on atmospheric gas systems, 2.2 m hose	0600 9556
TÜV approved flue gas probe, 335 mm immersion depth, up to +500°C, corresponding to the latest instrument test guidelines, also for atmospheric gas systems, 2.2 m hose	0600 9557
Flue gas probe, 335 mm immersion depth incl. probe stop, NiCr-Ni thermocouple up to +500°C, special NO <sub>2</sub> hose 2.2 m	0600 8550
Flue gas probe, 335 mm immersion depth incl. probe stop, NiCr-Ni thermocouple up to +1000°C, special NO <sub>2</sub> hose 2.2 m	0600 8552
Flue gas probe, 700 mm immersion depth incl. probe stop, NiCr-Ni thermocouple up to +1000°C, special NO <sub>2</sub> hose 2.2 m	0600 8551

Technical data	
O <sub>2</sub> measurement	0 to +25 Vol. % O <sub>2</sub>
CO <sub>2</sub> measurement	0 to +1 Vol. % CO <sub>2</sub>
CO measurement (H <sub>2</sub> comp.)	0 to +500 ppm CO
Efficiency	0 to +120 %
Flue gas loss (qA)	-20 to +99.9 % qA
NO measurement (optional)	0 to +3000 ppm NO
NO <sub>2</sub> meas. (optional)	0 to +500 ppm NO <sub>2</sub>
Draught	-40 to +40 hPa
delta P 1	±80 hPa
delta P 2	±1000 hPa
Temperature measurement	-40 to +1200 °C

testo 300 XXL Control unit	testo 300 XXL analysis box
°C, m/s, %RH, hPa, CO, CO <sub>2</sub> , rpm, mA	O <sub>2</sub> , CO <sub>2</sub> , °C, CO, (NO), (NO <sub>2</sub> )
testo 300 XXL control unit, displays measurement data and controls the analysis box, incl. built-in printer, backlit display, temperature and pressure measurement, 1 user defined probe socket (leak detection probe, ambient CO probe, ambient air probes), RS 232 interface, data memory for 4000 data blocks	testo 300 XXL analysis box, with built-in power unit, condensate trap, calibration protocol, measures temperature, flue gas dew point, flue draught, O <sub>2</sub> , CO <sub>2</sub> , CO (H <sub>2</sub> compensated), flue gas loss, efficiency, excess air
Part no. 0563 0354	Part no. 0563 0352

Recommended Set: testo 300 XXL, Basic Set for Installation and Customer Service	
testo 300 XXL analysis box, with built-in power unit, condensate trap, calibration protocol, measures temperature, flue gas dew point, flue draught, O <sub>2</sub> , CO <sub>2</sub> , CO (H <sub>2</sub> compensated), flue gas loss, efficiency, excess air	0563 0352
testo 300 XXL control unit, displays measurement data and controls the analysis box, incl. built-in printer, backlit display, temperature and pressure measurement, 1 user defined probe socket (leak detection probe, ambient CO probe, ambient air probes), RS 232 interface, data memory for 4000 data blocks	0563 0354
Cable, coiled, 2m, connects control unit and analysis box	0449 0052
TÜV approved flue gas probe, 335 mm immersion depth, up to +500°C, corresponding to the latest instrument test guidelines, also for atmospheric gas systems, 2.2 m hose	0600 9557
Smoke tester with oil, soot sheet, for measuring soot in flue gas	0554 0307
Combustion air temperature probe, immersion depth 60 mm	0600 9797
Transport case for analyser, probes and accessories	0516 0351

Recommended Set: testo 300 XXL, Comfort Set for Installation, Customer Service, Damage Assessment/Analysis	
testo 300 XXL analysis box, with built-in power unit, condensate trap, calibration protocol, measures temperature, flue gas dew point, flue draught, O <sub>2</sub> , CO <sub>2</sub> , CO (H <sub>2</sub> compensated), flue gas loss, efficiency, excess air	0563 0352
testo 300 XXL control unit, displays measurement data and controls the analysis box, incl. built-in printer, backlit display, temperature and pressure measurement, 1 user defined probe socket (leak detection probe, ambient CO probe, ambient air probes), RS 232 interface, data memory for 4000 data blocks	0563 0354
Cable, coiled, 2m, connects control unit and analysis box	0449 0052
TÜV approved flue gas probe, 335 mm immersion depth, up to +500°C, corresponding to the latest instrument test guidelines, also for atmospheric gas systems, 2.2 m hose	0600 9557
Smoke tester with oil, soot sheet, for measuring soot in flue gas	0554 0307
Combustion air temperature probe, immersion depth 60 mm	0600 9797
Quick-action hot wire probe, Ø 10 mm, with telescopic handle, for measurements in the lower velocity range with direction recognition	0635 1041
Gas leak detection probe to detect leaks in gas heating systems	0632 1246
Ambient CO probe	0632 1247
Transport case for analyser, probes and accessories	0516 0351

## Common Accessories and Qualification

### Cases

#### Case system

- The attachable case system especially for contractors makes it easy to transport all your equipment
- The system case, particularly robust, made of ABS plastic, with foam inserts
- Unlimited extension possibilities with the Testo case system



Tools system case with tools section, without contents, attachable to basic system case

Part no. 0516 0329



Product system case with small plastic boxes, without contents, attachable to basic system case

Part no. 0516 0328



Versatile system case without sections, attachable to basic system case

Part no. 0516 0331

### Qualification

Heating Measurement  
Engineering Qualification for  
Heating Fitters and Service  
Employees.

Please ask us for more  
information.

### Printers

#### Readings documentation

The readings are sent to the  
Testo printer by infrared.



Testo printer with cordless IRDA and  
infrared interface, 1 roll of thermal paper  
and 4 round batteries

Part no. 0554 0547

Fast testo 575 printer, incl. 1 roll of  
thermal paper and batteries, Infrared  
thermal line printer with graphics  
function

Part no. 0554 1775



# Installation and Safety

## Measuring instruments for installation

### Temperature

Surface temperature measurement	testo 905-T2	Page 20
Differential temperature measurement – At a glance	testo 935	Page 20
Non-contact temperature measurement – Fast and clean	testo 825-T2	Page 21
2 in 1 temperature measurement – Non-contact or direct	testo 825-T4	Page 21
Monitoring room temperature – Efficiently	testo 174	Page 22
Monitoring temperature – Long-term and without interruption	testo 175-T3	Page 22

### Pressure

Pressure measurement – Ideal for field use, efficient and accurate	testo 506	Page 23
Pressure measurement for gas and water installation	testo 312-2/-3	Page 24
Complete test system for gas and water installation	Test system	Page 25
The complete test system for gas and water pipes	testo 314	Page 26

### Endoscopy / Wood moisture

Fiberscopes – For fast diagnoses	testo 318	Page 27
Compact wood/material moisture meter	testo 606	Page 23

## Measuring instruments for your safety

### Indoor Air Quality

Gas leak detector	testo 317-2	Page 27
Detector for leaks on natural gas pipes	testo 316-1	Page 28
Gas leak detector – Detects even the smallest leaks	testo gas detector	Page 28
Flue gas spillage detector for detecting escaping flue gas	testo 317-1	Page 29
Ambient carbon monoxide warning	testo 317-3	Page 29
CO warning measurement – For your safety	testo 315-2	Page 30
Versatile CO measurement – For safety and service	testo 315-1	Page 31



## Surface temperature measurement

### testo 905-T2

The testo 905-T2 measurement stick measures surface temperatures up to 500°C fast and efficiently. The sprung, wide thermocouple measuring head guarantees a very quick reaction time and a high accuracy level.

- User-friendly operation
- Easy-to-read
- Super fast measurement
- Auto Off function



With flexible joint



Flexible measuring head

#### testo 905-T2

Surface temperature measurement stick with spring loaded probe, incl. multi-function clip, battery

Part no. 0560 9052

#### Technical data

Meas. range	-50 to +350 °C	Short-term to +500°C
Battery life	150 h	

Measuring surface temperature e.g. in a radiator

## Differential temperature measurement – At a glance

### testo 935

The testo 935 differential thermometer measures the temperature values of two probes simultaneously. In this way, you can measure the temperature difference between flow and return in a heating boiler. The large two-line display shows both values and the differential value can be called up.

- 2 probes can be connected
- Display: T1, T2 and differential temperature
- Button to hold readings and call up min and max values
- TopSafe case protects from dirt, water and impact (optional)



Data documentation printed on site (optional)

#### testo 935

Thermometer, incl. battery and calibration protocol

Part no. 0560 9350

#### Technical data

Meas. range	-50 to +1000 °C
Battery life	150 h
Dimensions	190 x 57 x 42 mm
Weight	300 g

#### Accessories Ordering data

Accessories Ordering data	Part no.
TopSafe (protection case) with bench stand	0516 0183
Testo printer with cordless IRDA and infrared interface, 1 roll of thermal paper and 4 round batteries	0554 0547
Transport case (plastic) for instrument and accessories	0516 0184

#### Suitable probes at a glance

Suitable probes at a glance	Part no.
Pipe wrap probe for pipe diameter 5 to 65 mm, with exchangeable measuring head. Measuring range short-term to +280°C	0602 4592
Waterproof immersion/penetration probe	0602 1292

Differential temperature (flow/return) measurement

## Non-contact temperature measurement – Fast and clean

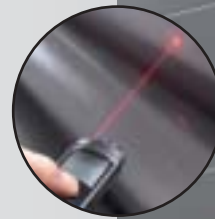
### testo 825-T2

The compact, fast response infrared thermometer testo 825-T2 accurately measures surface temperatures up to 400°C, for example, at difficult to access points.

- Laser sighting
- Emissivity adjustable from 0.20 to 1.00
- Acoustic alarm sounds when limit is exceeded
- Wall/belt holder to quickly position instrument



Water-tight and robust inside TopSafe (IP 67) and holder



With laser sighting



Non-contact surface temperature measurement e.g. in a radiator

#### testo 825-T2

Infrared thermometer with laser sighting and audible alarm, incl. TopSafe and wall/belt holder

Part no. 0560 8256

Accessories	Ordering data	Part no.
Adhesive tape e.g. for polished surfaces (roll, 10 m long, 25 mm wide), E = 0.93, temperature resistant up to +300°C		0554 0051

Technical data	
Meas. range	-50 to +400 °C
Measurement spot Ø/Distance	1/3
Battery life	20 h
Dimensions	184 x 43.4 x 19 mm
Weight	80 g

## 2 in 1 temperature measurement – Non-contact or direct

### testo 825-T4

The testo 825-T4 infrared and contact thermometer can measure surface temperatures up to +400°C quickly and without contact or accurately by contact. The contact side is equipped with a fast response sprung measurement head for shiny, reflecting or uneven surfaces but also for objects with unknown emissivities. The direct reference measurement with the infrared thermometer makes it possible to determine and adjust the emissivity required for the infrared measurement.

- All the advantages of testo 825-T2
- Infrared and contact measurement in one instrument
- Emissivity adjustable to contact measurement
- Auto-Off function

#### testo 825-T4

Infrared and contact thermometer with sighting laser and alarm, incl. TopSafe and wall/belt holder

Part no. 0560 8258



Temperature measurement on a non-smooth radiator using a self-adapting, flexible measuring head and non-contact measurement on a radiator

Technical data	Infrared thermometer	Contact thermometer
Meas. range	-50 to +400 °C	-50 to +250 °C
Measurement spot Ø/Distance	1/3	
Battery life	20 h	
Dimensions	184 x 43.4 x 19 mm	



## Monitor ambient temperature – Efficiently

### testo 174

The testo 174 mini data logger can measure room temperatures over longer periods of time which means it can be used to monitor the control behaviour of a thermostat valve. The current reading is shown in the display. The following can be called up: Stored minimum and maximum value, limit values and battery life.

- Accurate, efficient temperature logging with up to 3900 readings
- Alarm display if user defined maximum/minimum values are exceeded
- Software for data export, data analysis and parameterisation (optional)
- Data secure even if battery is spent

Technical data	
Meas. range	-30 to +70 °C
Data memory	3900 readings
Measuring rate	1 min ... 4 h
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, Starter Set

Temperature mini data logger, 1 channel, ComSoft 3 Basic, wall holder, lock, interface incl. PC connection cable, battery

Part no. 0563 1742

Large display

Data transfer to PC or notebook via interface (optional)

#### testo 174

Temperature mini data logger, 1 channel, incl. wall holder, lock and battery

Part no. 0563 1741

Logging room temperature with immediate alarm display if limits are exceeded

## Monitor temperature – Long-term and uninterrupted

### testo 175-T3

The 175-T3 temperature data logger logs temperature at 2 different points simultaneously over a period of several days, weeks or even months. In this way you can, for example, check the temperature spread between the flow and return of a heating system over a longer period of time.

- Temperature logging with up to 16000 readings
- Alarm display when user defined maximum/minimum values have been exceeded
- Software for data analysis and parameterisation (optional)

Accessories Ordering data	Part no.
Fast testo 575 printer, incl. 1 roll of thermal paper and batteries	0554 1775
Spare thermal paper for printer (6 rolls), permanent ink, Measurement data documentation legible for up to 10 years	0554 0568
Lock for wall holder for testo 175/177 dataloggers	0554 1755
ComSoft 3 - Basic Set with RS 232 interface for testo 175	0554 1759
Suitable probes at a glance	Part no.
Pipe wrap probe for pipe diameter 5 to 65 mm, with exchangeable measuring head. Measuring range short-term to +280°C	0602 4592

Technical data	
Meas. range	-50 to +400 °C -50 to +1000 °C
Data memory	16000
Measuring rate	10 s to 24 h
Battery life	> 2.5 years*
Analysis software	MS Windows 95b / 98 / ME / NT4-Sp4 / 2000 / XP
Dimensions	82 x 52 x 30 mm
Weight	90 g

\* At a measuring cycle of 15 min (-10 to +50°C)

Data is sent to PC or notebook via attachable interface (optional)

Inspects flow/return temperature

#### testo 175-T3

2 channel temperature data logger, wall holder and calibration protocol

Part no. 0563 1756

## Compact wood/material moisture meter

### testo 606

The compact testo 606 moisture meter is very user-friendly. Simply remove protective cap, place measuring electrodes in the building material - finished:

- Wood moisture measurement
- Measurements on building materials e.g. plaster, flooring...

- Moisture scale (6 to 44%) for wood and building material
- Protection cap with clip - testo 606 is always ready to hand
- Automatic instrument and battery test

#### Technical data

Electrodes: integrated, exchangeable, 8 mm long

Applications: Wood, wood products, veneer, cardboard, paper, set building materials, plaster, flooring, coatings

Measuring range of wood: 6 to 44%/accuracy  $\pm 1\%$

Measuring range of material: 0.2 to 2%/accuracy  $\pm 0.05\%$

Oper. temp. 0 to +40 °C

Oper. humidity 0 to +85 %RH

Battery type 3V button cell (CR 2032)

Dimensions 130 x 40 x 21 mm

Weight 98 g

Diameter/probe shaft tip  $\varnothing$  8 mm

#### testo 606

Wood/material moisture meter incl. clip and battery

Part no. 0560 6061



Fast and easy measurement of material moisture

#### Accessories Ordering data

#### Part no.

Pocket, For safe transport

0516 6061

## Pressure measurement – Practical, efficient and reliable

### testo 506

The mini differential pressure meter is ideally suitable for all pressure measurements when adjusting heating boilers. It switches over the measurement range automatically. It measures the flue gas draught or the differential pressure of the combustion chamber compared to the environment with the very high accuracy level of the lower measurement range, all other pressures with the upper measurement range. One-touch operation. The magnet in the rear wall of the housing and the suspension loop facilitate easy attachment. Your hands are then left free for adjustment work.

- Automatic measurement range switchover 10 / 200 hPa/mbar
- 5 switchable units: hPa/mbar, mmH<sub>2</sub>O, mmHg, inH<sub>2</sub>O, psi
- Magnet holder and suspension loop
- Soft rubber casing protects against impact
- 4/6 mm hose connections

#### testo 506

##### 0 to 10/200 hPa/mbar

Differential pressure meter, incl. connection hoses and battery

Part no. 0560 5063

#### Technical data

Meas. range 0 to +10 hPa  
+10 to +200 hPa

Battery life 150 h

Dimensions 86 x 48 x 24 mm

Weight 55 g



Electronic U-tube manometer



Switchable measurement range; gas flow pressure and flue draught measurement

#### Accessories Ordering data

#### Part no.

Connection hose, silicone, 5m long, Max. load 700 hPa (mbar)

0554 0440

Pressure set for gas pressure measurement on heating systems

0554 0449

Pressure set with flue draught probe, consisting of: 2 x silicone hoses  $\varnothing$  4 mm and  $\varnothing$  6 mm respectively, 4 mm and 6 mm T-piece, connection piece

0554 3150



## Pressure measurement for gas and water installation

### testo 312-2/-3

The testo 312-2 and 3 manometers are DVGW approved and correspond to TRGI for all pressure adjustments and pressure inspections on gas heating boilers. Use the testo 312-2 precision manometer to check flue gas draught, differential pressure in the combustion chamber compared with ambient pressure or gas flow pressure with high resolution. Fine pressures with a resolution of 0.01 hPa can be measured in the range from 0 to 40 hPa. The versatile testo 312-3 pressure meter facilitates fast and efficient preliminary and main tests on gas and water pipelines up to 6000 hPa (6 bar).

- Switchable measuring ranges, ideal resolution
- Compensation of temperature controlled reading deviations
- Alarm display when user defined limit values are exceeded
- Clear display with time

#### testo 312-2

##### Up to 40/200 hPa

Precision manometer up to 40/200 hPa, DVGW approval, incl. alarm display, battery and calibration protocol

Part no. 0632 0313

#### testo 312-3

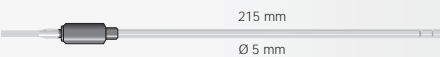
##### Up to 300/600 hPa

Versatile pressure meter up to 300/6000 hPa, DVGW approval, incl. alarm display, battery and calibration protocol

Part no. 0632 0314

#### Suitable probes at a glance

Pressure set with flue draught probe, consisting of: 2 x silicone hoses Ø 4 mm and Ø 6 mm respectively, 4 mm and 6 mm T-piece, connection piece



Technical data	testo 312-2	
Meas. range	-40 to +40 hPa	-200 to +200 hPa
Accuracy ±1 digit	±1.5% of mv (+3 to +40 hPa) ±0.03 hPa (0 to +3 hPa)	±0.5 hPa (0 to +50 hPa) ±2 hPa (+50 to +200 hPa)
Resolution	0.01 hPa	0.1 hPa
Overload	±1000 hPa	±1000 hPa
Technical data	testo 312-3	
Meas. range	-300 to +300 hPa	-6000 to +6000 hPa
Accuracy ±1 digit	±0.5 hPa (0 to +50 hPa) ±1.5 hPa (+50 to +300 hPa)	±2% of mv (+400 to +2000 hPa) ±4% of mv (+2000 to +6000 hPa) ±4 hPa (0 to +400 hPa)
Resolution	0.1 hPa	1 hPa
Overload	±8000 hPa	±8000 hPa
Common data	testo 312-2/-3	
Dimensions	215 x 68 x 47 mm	
Weight	300 g	



Printout



With alarm function



Differential pressure measurement on heating units

#### Printers and Accessories

Part no.	Part no.
Testo printer with cordless IRDA and infrared interface, 1 roll of thermal paper and 4 round batteries	0554 0547
Recharger for printer (with 4 standard rech. batteries), Rechargeable batteries are recharged externally	0554 0110
Spare thermal paper for printer (6 rolls)	0554 0569
Spare thermal paper for printer (6 rolls), permanent ink, Measurement data documentation legible for up to 10 years	0554 0568

#### Additional Accessories and Spare Parts

Part no.	Part no.
9V rech. battery for instrument, Instead of battery	0515 0025
Recharger for 9V rechargeable battery, For external recharging of 0515 0025 battery	0554 0025
Pressure transmitter 1-1000 mbar to measure pressure in filled water pipelines	0554 3168
Pressure transmitter 1-6 bar to measure pressure in filled water pipelines	0554 3159
Connection hose for pressure transmitter to system (1 off)	0554 3170

#### Transport and Protection

Part no.	Part no.
TopSafe (protection case), with bench stand, Protects instrument from dirt and impact	0516 0443
Magnetic bench stand suitable for TopSafe 0516 0443, For positioning on boilers, for example	0554 0407
Case, For secure storage of measuring instrument	0516 0191
Transport case (plastic), For transport and secure storage of measuring instrument and accessories	0516 3120

## Complete test systems for gas/water fitters

### Testing system set

Everything you need to inspect gas and water pipeline installations: Check pressure drop using the testo 312-3 electronic pressure meter. The measurement results are output on the printer. Using the slide rule, you can quickly determine the amount of gas leaking and thus the serviceability of the gas pipelines. A gas leak is quickly detected by testo 316-1.

- Pre and main test on gas pipelines
- Pressure check on water pipelines
- Fast detection of amount of leaking gas
- Efficient leak detection



Display with reading



Printout with date



Pressure test on water pipes (3-5 bar test pressure)

Accessories	Ordering data	Part no.
Pressure drop test set 200 mbar, incl. manual bulb pump, hoses, T-fitting w/ valve, conical test stopper 1/2"		0554 3153
Test pump to produce test pressure		0554 3157
Single-pipe counter cap, connects test fittings to pipe, Simply dismantle gas counter, attach single-pipe counter cap and connect hose		0554 3156
Two-valve branch (brass) to connect 2 or more pipes, can be blocked off separately		0554 3161
Single-valve stop to block off pipe, e.g. when changing hoses during a test		0554 3162
LW 6 connection hose, To connect T-fitting/single-pipe counter cap or for extension purposes		0554 3158
Conical test stop 1/2" for connecting test set to the gas pipe 16-32 mm, Connects test fittings to pipe		0554 3151
Conical test stop 3/4" for connecting the test set to the gas pipe 32-44 mm, Connects test fittings to pipe		0554 3155
Conical test stop 1" to connect test fittings to gas pipe 35-65 mm, Connects test fittings to pipe		0554 3152
High pressure stage stop 3/8" and 3/4", To connect test fittings to gas pipe		0554 3163
High pressure stage stop 1/2" and 1", To connect test set to gas pipe		0554 3164
Leak detection spray for spraying on the gas pipe, shows leaking points where bubbles form, To detect leaks (bubbles appear) in gas pipes		0554 3166
System case for the complete test system, Ensures orderly storage of case contents		0554 3165
Slide rule to quickly determine serviceability		0554 3169
DKD calibration certificate/Pressure, Differential and positive pressure: 6 measuring points distributed over meas. range (> 0.6% of full-scale value)		0520 0225



### Testing system set

testo 312-3 pressure meter  
TopSafe for testo 312  
Printer

testo 316-1 gas leak detector  
TopSafe for testo 316-1

Accessories: Pressure drop test set 200 mbar, testing pump, single-pipe counter cap, two valve T-fitting, single valve barrier, connection hose

LW 6, conical test plugs 1/2", 3/4", high pressure stage stops 3/8", 3/4", 1/2", 1", leak detection spray, slide rule, system case

Part no. 0563 0314

### High pressure set with case (without instrument)

Pressure drop test set, 200 mbar  
Testing pump, greater than 500 mbar  
Single-pipe counter cap  
Two-valve T-fitting  
Single-valve barrier  
Connection hose LW

Conical test plugs 1/2" and 3/4"  
High pressure stage stop 3/8", 1/2", 3/4", and 1"  
Leak detection spray  
System case

Please order the testo 312-3 or testo 312-2 instrument suitable for your requirements (see opposite page)

Part no. 0554 3160

## The complete testing system for gas and water pipes

### 1 Unique

Efficient measurement due to absolute pressure compensation testo 314 independently compensates fluctuations in absolute pressure during volume flow measurement via absolute pressure compensation.

### 2 Fast

Zeroing phase for connected pipe

To determine  $\Delta P$  efficiently and quickly, zeroing to ambient air pressure takes place while the measurement is in progress. This eliminates interruptions and removal of pipes.

### 3 Efficient

Measuring using standard test pressure compensation with feeding unit  
The flow test which is independent of the gas mains, has the advantage that pressure fluctuations in the pipes can be compensated. The built-in flow pressure controller (gas bubble with gas feeding unit) compensates for fluctuations. The finely adjusted value is displayed in testo 314 along with the leakage amount.

- Preliminary and main test on gas pipes
- Pressure drop test on water pipes (high pressure measurement up to 30 bar)
- Fast measurement of amount of gas leaking
- Efficient detection of gas leaks using testo 316-1
- Analysis software to show course of measurement

#### testo 314

Pressure meter with built-printer, from -1000 mbar to +1000 mbar

Part no. 0560 3140

### The complete testing system set for gas/water pipes

testo 314, pressure meter with built-in printer, from -1000 mbar to +1000 mbar
Mains unit 230 V/8 V/1 A for separate use of control unit
System case incl. hose set for connection to the gas pipe
testo 316-1, electronic gas leak detector with flexible measurement probe
TopSafe for testo 316, indestructible protection case incl. stand, protects from dirt and impact
Leak detection spray for spraying on gas pipe, bubbles indicate leaking points
Conical test stop 1/2" for connecting test set to the gas pipe 16-32 mm
Conical test stop 3/4" for connecting test set to the gas pipe 24-44 mm
High pressure step plug 3/8" and 3/4" for connecting test set to the gas pipe
High pressure step plug 1/2" and 1" for connecting test set to the gas pipe
Pressure release plug
Single-valve block for blocking off the pipe
Double valve branch (brass) for connecting 2 or more pipes, can be blocked off separately
Test pump for generating test pressure

Part no. 0563 3140 70

#### Technical data

Pressure meas. range	0 to 1000 mbar
Resolution	0.1 mbar
Accuracy	$\pm 0.5$ mbar; $\pm 3\%$ of mv
Volume flow meas. range	0 to 8 l/h
Resolution	0.1 l/h
Accuracy	$\pm 0.2$ l/h; $\pm 5\%$ of mv
Battery life	> 5 h
Dimensions	252 x 115 x 58 mm
Weight	Approx. 728 g



Built-in printer with large, backlit graphics display



Standard test pressure compensation with feeding unit



The complete testing system in a case

Accessories Ordering data	Part no.
Gas feeding unit for testo 314, for battery-operated measurement	0554 3142
Power unit 230 V/8 V/1 A, for instrument (European plug), for mains operation and battery recharging	0554 1084
testo 316-1, Electronic gas leak detector with flexible measurement probe and battery	0632 0316
Hose set for connection to gas pipe with test pump and conical test plug 1/2"	0554 3141
Single-pipe counter cap, connects test fittings to pipe	0554 3156
Two-valve branch (brass) to connect 2 or more pipes, can be blocked off separately	0554 3161
Single-valve stop to block off pipe	0554 3162
LW 6 connection hose, To connect T-fitting/single-pipe counter cap or for extension purposes	0554 3158
Conical test stop 1/2" for connecting test set to the gas pipe 16-32 mm	0554 3151
Conical test stop 3/4" for connecting the test set to the gas pipe 24-44 mm	0554 3155
Conical test stop 1" to connect test fittings to gas pipe 35-65 mm	0554 3152
High pressure stage stop 3/8" and 3/4", To connect test fittings to gas pipe	0554 3163
High pressure stage stop 1/2" and 1", To connect test set to gas pipe	0554 3164
Leak detection spray for spraying on the gas pipe, shows leaking points where bubbles form	0554 3166
Spare thermal paper for printer (6 rolls)	0554 0569
Pressure set for gas pressure measurement on heating systems	0554 0449
Test pump to produce test pressure	0554 3157
Pressure release plug	0554 3171
ISO calibration certificate/Flow in gases, 5 measurement points	0520 0084
Transport and Protection	Part no.
TopSafe for testo 316, protection case incl. stand, protects from dirt and impact	0516 0189
System case with hose set, test pump and conical test plug 1/2"	0516 3140
Software and Accessories	Part no.
Analysis software, shows measurement in form of diagrams, tables and manages customer data	0554 3332
RS232 cable, Connects instrument to PC (1.8 m) for data transfer	0409 0178
Probes and Accessories	Part no.
High pressure probe made of stainless steel, up to 30 bar, incl. connection line	0632 1842
Pipe wrap probe for pipes with diameter of up to 2", for flow/return temp. meas. in hydronic systems	0600 4593
Quick-action surface probe with sprung thermocouple strip, measuring range short-term to +500°C	0604 0194
Connection line for fast-action surface probe	0440 0143
<b>See Page 28 for Technical Data on testo 316</b>	

## Fiberscopes – For fast diagnosis

### testo 318

The fiberoptic testing tools from the testo 318 series provide you with a clear picture of difficult-to-access points. Dark areas are illuminated by the built-in halogen light and the high powered lens focuses on objects as close as 19 mm (3/4"). The lens and probe shaft can be immersed in liquids without worry.

- Thin flexible probe shaft
- Easy one-hand operation
- Clip-on 45° mirror (optional)
- For inspections in seconds



Halogen illumination



Inspecting a hard to reach point in a heating system

#### testo 318-1 S

914 mm long, Ø 6 mm

Fiberscope, probe: 914 mm long/Ø 6 mm, halogen light and batteries

Part no. 0632 3181

#### testo 318-2 S

457 mm long, Ø 6 mm

Fiberscope, probe: 457 mm long/Ø 6 mm, halogen lamp and batteries

Part no. 0632 3182

#### testo 318-1

914 mm long, Ø 10 mm

Fiberscope, probe: 914 mm long/Ø 10 mm, halogen light, batteries

Part no. 0632 0318

#### testo 318-2

457 mm long, Ø 10 mm

Fiberscope, probe: 457 mm long/Ø 10 mm, halogen lamp, batteries

Part no. 0632 0319

#### Accessories Ordering data

#### Part no.

Spare halogen lamp, Extremely powerful for optimum illumination, even in dark areas	0213 0017
Clip on 45° mirror, Ø 6 mm, For visual inspections at hard-to-access points	0554 1325
Clip on 45° mirror, Ø 10 mm, For inspections at hard to access points	0554 1320

#### testo 318-6

1830 mm long, Ø 10 mm

Complete 318-6 Kit consisting of fiberscope, probe: 1830 mm long/Ø 10 mm, halogen lamp, clip-on 45° mirror, attachable clip with magnet, spare lamp, batteries and hard shell case

Part no. 0563 3186

Technical data	testo 318-1/-2 S	testo 318-1/-2/-6
Number of image points (fibres)	6,000	6,000
Viewing field	40°	40°
Min. focussing distance	19 mm	19 mm
Probe diameter	6 mm	10 mm
Max. bending radius	203 mm	203 mm
Light source	Halogen lamp (3220 K)	Halogen lamp (3220 K)

## Gas leak detector

### testo 317-2

Highly practical gas leak detector for fast checks on gas pipe connections, with visual bar display.

- Self-test by sensor following switch-on
- Audible confirmation of readiness to operate
- Rising alarm sounds with increasing gas concentrations

- Non-stop sound if alarm threshold is exceeded
- Battery monitoring with visual display



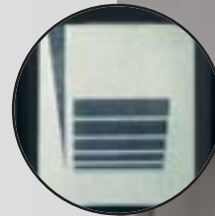
#### testo 317-2

Gas leak detector including case with belt clip and hand loop, self-test function and batteries

Part no. 0632 3172

#### Technical data

Meas. range	0 to 20.000 ppm CH <sub>4</sub>	0 to 10.000 C <sub>3</sub> H <sub>8</sub>
Display	8 segment trend display	
Alarm thresholds	10.000 ppm CH <sub>4</sub>	5000 C <sub>3</sub> H <sub>8</sub>
Lower response thresholds	100 ppm CH <sub>4</sub> 50 C <sub>3</sub> H <sub>8</sub>	
t <sub>90</sub>	<5 s	Heat-up time 60 s
Battery type	2 batteries type micro AAA 1.5 V (LR03)	
Battery life	4 h (LR03)	
Oper. temp.	-5 to +45 °C	Storage temp. -20 to +50 °C
Audible emitter	85 dB(A)	



Shows gas concentration in visual bar display



Audible warning about dangerous gas concentrations e.g. at gas pipe connections

## Detector for leaks in natural gas pipes

### testo 316-1

The testo 316-1 gas leak detector quickly detects even the smallest leaks.

- Bendable measurement probe for inaccessible pipes
- Optical and audible alarm if limit value is exceeded
- TopSafe case protects from dirt and impact (optional)

#### testo 316-1

Electronic gas leak detector with flexible measurement probe and battery

Part no. 0632 0316

#### Technical data

Meas. range	0 to 10,000 ppm CH <sub>4</sub>
1st alarm limit	from 200 ppm CH <sub>4</sub>
2nd alarm limit	10,000 ppm CH <sub>4</sub>
Battery life	> 5 h
Dimensions	190 x 57 x 42 mm

#### Accessories Ordering data

#### Part no.

TopSafe for testo 316, protection case incl. stand, protects from dirt and impact	0516 0189
Case for instrument and probes, For safe and orderly storage	0516 0182
Transport case (plastic), For transport and secure storage of measuring instrument and accessories	0516 3120
Accessories set (for instrument without TopSafe) includes multi-function clip, carrier loop, probe holder	0554 0550



TopSafe case protects from dirt and impact (optional)



Checks for leaks in domestic gas pipes

## Gas detector – Detects even the smallest gas leaks

### testo gas detector

According to DVGW leaflet G 465-4, gas detectors are approved for aboveground gas detection up to the "lower explosive limit (LEL)". Testo's gas detector is a multi-range gas detector for the gas types methane, propane and hydrogen. Gas concentrations are measured by the semi-conductor sensor in the ppm range and are shown in the display with a

resolution of 1 ppm.

- Audible signals when approaching the lower explosion limit
- Continuous sound and display when the explosion limit is reached

Flexible probe extension for difficult-to-access points



Gas detection and leak location in gas pipelines and installations

#### Technical data

Display range	Methane CH <sub>4</sub>	1 to 999 ppm, 0.1 to 4.4 Vol.%
	Propane C <sub>3</sub> H <sub>8</sub>	1 to 999 ppm, 0.1 to 1.9 Vol.%
	Hydrogen H <sub>2</sub>	1 to 999 ppm, 0.1 to 4.0 Vol.%
Resolution	1 ppm / 0.1 Vol.%	
First reaction	>10 ppm	
Power supply	Built-in rechargeable block, NiMH, 1600 mAh	
Ex-Protection	Sensor intrinsically safe to DMT test institute	
Reaction time t <sub>90</sub>	2-3 s	Oper. temp. -15 to +40 °C
Storage temp.	-25 to +70 °C	Dimensions 190 x 40 x 28 mm
Rech. battery life	>8 h	Weight 320 g
Warranty	2 years on instr., 1 year on sensor	

#### testo gas detector

Gas detector incl. flexible probe extension, rechargeable battery and mains unit for mains operation and battery recharging

Part no. 0632 0323

## Flue gas spillage detector

### testo 317-1

The testo 317-1 spillage detector efficiently locates escaping heating flue gases. The practical instrument immediately gives off an optical and acoustic alarm making a visual inspection unnecessary. The bendable probe makes it ideal for use at hard-to-access points.

- Reliable detection of leaking flue gases
- Bendable measurement probe for inaccessible points
- Audible and visual alarm

#### testo 317-1

Spillage detector with flexible probe, incl. battery

Part no. 0632 3170

#### Technical data

Reaction time	2 s
Length of probe pipe	200 mm
Diameter/Probe pipe tip	Ø 10 mm
Dimensions	128 x 46 x 18 mm
Weight	300 g



Establishes if flue gases have been drawn off completely from the burner

## Ambient carbon monoxide warning

### testo 317-3

The testo 317-3 CO monitor detects the presence of carbon monoxide in the surrounding area and warns the user both visually and audibly about dangerous gas concentrations e.g. when installing and servicing gas heaters.

- 3 year warranty on CO cell
- No initialisation phase, instrument is ready to operate immediately
- Adjustable alarm threshold
- CO zeroing at site

#### testo 317-3

CO Monitor testo 317-3 incl. leather bag, headphones, hand strap, self-test function, sampler

Part no. 0632 3173

#### Technical data

Meas. range	0 to +1999 ppm
Resolution	1 ppm
Accuracy	±10 ppm (0 to +99 ppm) ±10 % (+100 to +499 ppm) ±20 % (>+500 ppm)
Reaction time ( $t_{90}$ )	40 s
Battery life	150 h (with beeper switched off)
Oper. temp.	-5 to +45°C
Warranty	2 years on the instrument 3 years on the CO sensor



Visual and audible alarm



Warns about dangerous gas concentrations e.g. during installation and maintenance work

## CO warning measurement – For your safety

### testo 315-2

Use testo 315-2 to check the CO level in ambient air. Even low concentrations of the highly poisonous gas are detected. In this way, you can judge whether the burner flue gases are being fully drawn off.

- Reliable CO warning
- Adjustable alarm limits
- Audible and visual alarm
- Automatic zero point adjustment
- Data printout on site (optional)
- TopSafe case protects from dirt, water and impact (optional)

#### testo 315-2

CO warning instrument, with battery and calibration protocol

Part no. 0632 0317

#### Printer and Accessories

#### Part no.

Testo printer with cordless IRDA and infrared interface, 1 roll of thermal paper and 4 round batteries	0554 0547
Recharger for printer (with 4 standard rech. batteries), Rechargeable batteries are recharged externally	0554 0110
Spare thermal paper for printer (6 rolls)	0554 0569
Spare thermal paper for printer (6 rolls), permanent ink	0554 0568

#### Additional Accessories and Spare Parts

#### Part no.

CO flue gas probe to measure CO in flue gas, with exchangeable NOx filter and pressure reducer	0554 3154
9V rech. battery for instrument, instead of battery	0515 0025
Recharger for 9V rechargeable battery, For external recharging of 0515 0025 battery	0554 0025
Spare particle filter (10 off), For CO flue gas probe	0554 0040
Filter granulates (refill set) to renew NOx filter in CO flue gas probe	0554 3167

#### Transport and Protection

#### Part no.

TopSafe (protection case), with bench stand, Protects instrument from dirt and impact	0516 0443
Magnetic bench stand suitable for TopSafe 0516 0443, For positioning on boilers, for example	0554 0407
Multi-function clip (for instrument with TopSafe) consisting of multi-function clip and magnetic holder	0554 0398
Case, For secure storage of measuring instrument	0516 0191
Transport case (plastic), For transport and secure storage of measuring instrument and accessories	0516 3120

#### Calibration Certificates

#### Part no.

ISO calibration certificate/Flue gas, Calibration points 2.5% O <sub>2</sub> : 100 and 1000 ppm CO; 800 ppm NO; 80 ppm NO <sub>2</sub> ; 1000 ppm SO <sub>2</sub>	0520 0003
ISO calibration certificate/CO, CO probes: calibration points 0; 80 ppm	0520 0039



With printout



CO zeroing in contaminated room



Safe CO level check

#### Technical data

Meas. range	0 to +2000 ppm CO
Accuracy	±10 ppm CO (0 to +100 ppm CO) ±10% of mv (+100 to +2000 ppm CO)
Resolution	1 ppm CO
Alarm limits	50/100/500 ppm
Zero point adjustment	Automatically when switched on
Dimensions	215 x 68 x 47 mm
Weight	400 g

## Versatile CO measurement – For safety and service

### testo 315-1

The testo 315-1 provides you with all the measurement functions needed to service gas heating systems. While measuring draught, pressure difference, temperature or ionisation current, the instrument can also simultaneously show the CO level in the ambient air. In this way, you always have the system's safety under your watchful eye.

- Efficient CO warning
- Three alarm limits are user-defined
- Audible and visual alarm
- Automatic zero point adjustment
- Two temperature inputs to compare the flow and return temperature
- Compensation of temperature-related reading deviations
- TopSafe case protects from dirt, water and impact (optional)

Parallel CO alarm



Checks gas flow pressure

#### testo 315-1

CO warning and servicing instrument for gas heating systems with battery and calibration protocol

Part no. 0632 0315

Accessories Ordering data	Part no.
9V rech. battery for instrument, instead of battery	0515 0025
Recharger for 9V rechargeable battery, For external recharging of 0515 0025 battery	0554 0025
TopSafe (protection case), with bench stand, Protects instrument from dirt and impact	0516 0443
Magnetic bench stand suitable for TopSafe 0516 0443, For positioning on boilers, for example	0554 0407
Testo printer with cordless IRDA and infrared interface, 1 roll of thermal paper and 4 round batteries	0554 0547
Transport case (plastic), For transport and secure storage of measuring instrument and accessories	0516 3120

#### Suitable probes at a glance

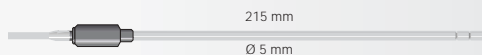
CO flue gas probe to measure CO in flue gas, with exchangeable NOx filter and pressure reducer

0554 3154



Pressure set with flue draught probe, consisting of: 2 x silicone hoses Ø 4 mm and Ø 6 mm respectively, 4 mm and 6 mm T-piece, connection piece

0554 3150



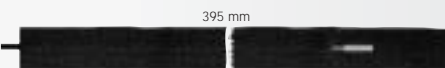
Cables for measuring ionisation current (2 off) incl. clamp testing tips, cable 1 m long

0554 0551



Pipe wrap probe with Velcro strip, for temperature measurement on pipes with diameter up to max. 120 mm, Tmax +120°C

0628 0020



Technical data					
Meas. range	0 to +2000 ppm CO	-200 to +200 hPa	-40 to +40 hPa	-40 to +600 °C	-100 to +100 µA
Accuracy ±1 digit	±10% of mv (+100 to +2000 ppm CO) ±10 ppm CO (0 to +100 ppm CO)	±0.5 hPa (-49.9 to +49.9 hPa) ±1.5 hPa (-200 to -50 hPa) ±1.5 hPa (+50 to +200 hPa)	±1.5% of mv (-40 to -3 hPa) ±1.5% of mv (+3 to +40 hPa) ±0.03 hPa (-2.99 to +2.99 hPa)	±0.5% of mv (+100 to +600 °C) ±0.5 °C (0 to +99 °C)	±3 µA (-100 to +100 µA)
Resolution	1 ppm CO (0 to +2000 ppm CO)	0.1 hPa (-200 to +200 hPa)	0.01 hPa (-40 to +40 hPa)	0.1 °C (-40 to +600 °C)	1 µA (-100 to +100 µA)
Display	LCD, 2 lines		Battery type	9V block battery	
Material/Housing	ABS		Battery life	16 h	
Oper. temp.	+5 to +45 °C		Dimensions	215 x 68 x 47 mm	
Storage temp.	-20 to +50 °C		Weight	400 g	





Additional documentation is available on Heating, Air Conditioning and Ventilation:

