



testo 330-2

# New Measurement Engineering for Customer Service and Service Technicians

Robust, long-lasting and faster

NEW!



°C

hPa

O<sub>2</sub>

CO/H<sub>2</sub>

## The latest measurement engineering: robuster, longer-lasting and faster

The new flue gas analyser generation offers Customer Service and service technicians all the features required to competently carry out the measurement tasks at hand. Regardless of whether in the context of breakdowns or emergencies, during the monitoring of legal limit values or during daily maintenance assignments, testo 330-2 is a reliable partner for the complete spectrum of measurement tasks. With the option of carrying out NOlow measurements on lowNOx burner systems, this check – although not compulsory but relevant for the environment - can be completed to highest efficiency levels.



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### 1 Completely robust instrument concept

For applications in extreme conditions, such as highly contaminated burners, Testo's patented technology guarantees efficient display of the CO level of up to 30,000 ppm. The measurement cell is not subjected to any more strain than during normal measurements. The design of the gas paths and Testo measurement cells in connection with the positioning of the condensate trap prevents

blockage caused by condensate. It is easy to gain access to the condensate trap for emptying purposes. It is located just in front of the measurement cell in the housing. The particle filter absorbs impurities at the point where they accumulate. That is why the filter cartridge is located in the probe handle, for easy access.

The new testo 330 not only

stands out on account of its distinctive and ergonomic design but also on account of its unique robust housing design. The material used acts as a built-in protection from impact and shock. The large backlit display is positioned slightly recessed in the housing for better protection.



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### 2 Long life of wearing parts

The typical service life of Testo's own measurement cells now lies at more than three years.

The lithium ion rechargeable batteries – free from the memory effect and total discharge - are currently unbeatable in terms of service life.

The design layout of the gas paths and an additional filter mean that the gas pump is protected thus increasing service life.



### 3 Faster and more effective

testo 330-2 supports the fast switch between measurement and maintenance. The probe can remain positioned in the flue during the zero phase of the measurement cells. testo 330 is calibrated in less than 30 seconds. Fuel, for example, can be selected at the same time and the analyser is then ready for use. When measuring  $\Delta p$ ,  $\Delta t$  or gas

flow rate by quickly and simply attaching the probe, the analyser can automatically recognise the job and the corresponding measurement menu appears immediately. The infrared interface for the control electronics of the burner systems facilitates fast error diagnosis on the heating unit. The built-in IRDA interface makes it possible to

easily document all results on a data carrier such as a PDA or laptop.



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### 4 Increased safety

The new testo 330-2 opens up new opportunities for planning applications. The times in which an analyser suddenly lets the user down belong to the past.

testo 330's instrument diagnosis provides you with information about the qualitative status of functions and wearing parts. The level on the condensate trap is

also shown. Using testo 330 makes it easier to plan your daily work.



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### 5 More convenience and user-friendliness

With testo 330 you have the practical benefit of Testo's rechargeable batteries which can be recharged outside and 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 by the user.

The new, highly robust fast probe connection for all gas paths eliminates any confusion. The single cable cannot be bent, is indestructible and saves space. The menu-driven operational procedures – in compliance with standards – help you to avoid errors and save you time. The very large display is a perfect additional aid.



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## The right accessories for every application



### The probes

The robust probe handle which fits nicely in your hand facilitates easy positioning. The probe has a quick connection function ensuring that all gas paths are connected correctly. The particle filter accommodated in the handle blocks out particles efficiently. Additionally, the probes require little or no maintenance and are easy to clean. Different lengths and diameters ensure a high flexibility level for all applications. When changing the probe, the probe shaft is simply attached to the probe handle and clicks into place. The multi-hole

and dual wall clearance probe round off our wide range of flue gas probes. The ambient CO probe as well as the CO<sub>2</sub> probe are recognised automatically by the analyser and the measurement results immediately appear in their own graphically supported menu. Furthermore, the user-defined alarm limit is coupled with an audible signal. Measurements can be carried out in their entirety simultaneously with flue gas measurement. The gas leak detection probe which can be attached to the

analyser also has a user-defined alarm limit. A warning signal is triggered if the limit is exceeded. The probe is also recognised automatically and the results are shown in a trend graph in their own menu.



## The new versatile infrared printer

The new testo printer – cordless with infrared interface – saves data for printing. This saves time since the analyser is ready for operation immediately after the data is transmitted. The printer can be used anywhere.



## New upload and configuration software

When developing the software, user-friendly operation and handling had top priority. A modern USB interface is available for this purpose. Data cannot only be uploaded, it can also be

conveniently filed and managed. It is also possible to control the analyser via software when measuring online.





## At a glance

### The set for Customer Service and service technicians

Testo has put together a special set for customer service and service technicians. Of course, it is always possible to add to and supplement the set by selecting from the comprehensive range of accessories available.

- testo 330-2 flue gas analyser incl. rechargeable battery and calibration protocol
  - 100-240 V mains unit for mains operation or battery recharging in instrument
  - Modular flue gas probe, immersion depth: 300 mm,  $\phi$  8 mm
  - Combustion air temperature probe, 190 mm long
  - Hose connection set for separate gas pressure measurement
  - IRDA printer
  - Smoke tester incl. oil, soot sheets and reference scale
  - Basic system case for analyser, probes and accessories
- Part no. 0563 3315 70

### Always a step ahead

testo 330-2 at a glance



#### Instrument diagnosis

- Automatic instrument leak test
- Rechargeable battery status display
- Sensor status display
- Monitoring of condensate trap level with „FULL“ message
- Display of pump capacity (l/min.)
- Display of error status incl. description and diagnosis
- Display of last maintenance
- Display of instrument temperature
- Operating hour counter

#### Automatic menu selection

- Recognition of connected probe

#### Initialisation of flue gas sensors without removal of probes

- The probe can remain in the flue during initialisation

#### Memory management

- 200 meas. data records with address and systems no.
- Several measurement data records per system number are possible
- Read in using barcode reader
- IRDA interface for data transfer to PDA/Notebook
- USB interface for data transfer to PC
- ZIV driver for all conventional branch software

#### Additional features

- Interface to Testo Software with analysis and graphics functions and online measurement
- Interface to burners
- Calculated parameter: Flue gas dewpoint
- Graphics display
- Integrated impact protection with magnet, recessed display
- Protection class: IP40
- Rechargeable battery lifetime > 6 h with pump operating
- Rechargeable battery separate and rechargeable in instrument
- Adjustable alarm thresholds for ambient CO/CO<sub>2</sub> measurement

#### Additional measurement tasks

- $\Delta T$  measurement, flow/return
- Ambient CO measurement
- Ambient CO<sub>2</sub> measurement
- Detection of gas leaks with gas leak detection probe
- $\Delta P$  measurement for gas pressure
- Gas/oil flow rate determination

#### TÜV approval / EN standard

- Accuracy approved for O<sub>2</sub>, CO<sub>2</sub>, CO, NO, NO<sub>low</sub>, °C, hPa



Technical Data		
Temperature	Meas. range	-40 to +1200 °C
	Accuracy	±0,5 °C (0.0 to +100.0 °C) ±0,5 % of mv (remaining range)
	Resolution	0.1 °C (-40 to 999,9 °C) 1 °C (remaining range)
Draught measurement	Meas. range	-40 to 40 hPa
	Accuracy	±0.02 hPa or ±0.5 % of mv (-0.50 to +0,60 hPa) * ±0.03 hPa or ±0.5 % of mv (+0.61 to +3.00 hPa) * ±1.5 % of mv (+3.01 to +40.00 hPa)
	Resolution	0.01 hPa
Pressure measurement	Meas. range	0 to 200 hPa
	Accuracy	±0.5 hPa (0.0 to 50.0 hPa) ±1 % of mv (50.1 to 100.0 hPa) ±1.5 % of mv (remaining range)
	Resolution	0.1 hPa
O <sub>2</sub> measurement	Meas. range	0 to 21 Vol. %
	Resolution	0.1 Vol. %
	Accuracy	±0.2 Vol. %
	Adjustment time t <sub>90</sub>	< 20 s
CO measurement (H <sub>2</sub> compensated)	Meas. range	0 to 8000 ppm
	Resolution	1 ppm
	Accuracy	±10 ppm or ±10% of mv (0 to 200 ppm) * ±20 ppm or ±5% of mv (201 to 2000 ppm) * ±10% of mv (2001 to 8000 ppm)
	Adjustment time t <sub>90</sub>	< 40 s
	from 8000 ppm	Display range Resolution
Efficiency (ETA)	Meas. range	0 to 120 %
	Resolution	0.1 %
Flue gas loss	Meas. range	0 to 99.9 %
	Resolution	0.1 %
CO <sub>2</sub> measurement	Display range	0 to CO <sub>2</sub> max
	Resolution	0.1 Vol. %
	Accuracy	±0.2 Vol. %
	Measurement	Digital calculation from O <sub>2</sub>
	Adjustment time t <sub>90</sub>	< 40 s
Option: NO <sub>low</sub> measurement	Meas. range	0 to 300 ppm
	Resolution	0.1 ppm
	Accuracy	±2 ppm (0.0 to 40.0 ppm) ±5% of mv (remaining range)
	Adjustment time t <sub>90</sub>	< 30 s
Option: NO measurement	Meas. range	0 to 3000 ppm
	Resolution	1 ppm
	Accuracy	±5 ppm (0 to 100 ppm) ±5% of mv (101 to 2000 ppm) ±10% of mv (2001 to 3000 ppm)
	Adjustment time t <sub>90</sub>	< 30 s
Ambient CO measurement (with CO probe)	Meas. range	0 to 500 ppm
	Resolution	1 ppm
	Accuracy	±5 ppm (0 to 100 ppm) ±5% of mv (>100 ppm)
	Adjustment time t <sub>90</sub>	Approx. 35 s
Gas leak measurement for combustible gases (with gas leak detection probe)	Range of indication	0 ... 10,000 ppm CH <sub>4</sub> / C <sub>3</sub> H <sub>8</sub>
	Signal	Optical display (LED) audible display via buzzer
	Adjustment time t <sub>90</sub>	< 2 s
Ambient CO <sub>2</sub> measurement (with ambient CO <sub>2</sub> probe)	Meas. range	0 to 1 Vol. % 0 to 10000 ppm
	Accuracy	±(50 ppm ±2 % of mv) (0 to 5000 ppm)
	Adjustment time t <sub>90</sub>	Approx. 35 s
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 block: 3.7 V / 2.2 Ah Mains unit: 6 V / 1.2 A
	Warranty	Analyser/cells/probe 2 years, rechargeable battery 1 year
IRDA printer	Printer type	Infrared-controlled thermal printer, adjustable contrast, graphics can be printed
	Reception radius	Max. 2 m
	Dimensions	186 x 91 x 61 mm
	Weight	430 g incl. batteries
	Oper. temp.	0 to +50 °C
	Storage temp.	-40 to +60 °C
	Power supply	4 round cell batteries, 1.5 V or NC rechargeable batteries





# Fax Order Form


Qty.	testo 330-2 Set: Pro flue gas analysis: Customer service/technicians	Part no.
	<ul style="list-style-type: none"> <li>· testo 330-2 flue gas analyser incl. rechargeable battery and calibration protocol</li> <li>· 100-240 V mains unit for mains operation or battery recharging in instrument</li> <li>· Modular flue gas probe, immersion depth: 300 mm, Ø 8 mm</li> <li>· Combustion air temperature probe, 190 mm long</li> <li>· Hose connection set for separate gas pressure measurement</li> <li>· IRDA printer</li> <li>· Smoke tester incl. oil, soot sheets and reference scale</li> <li>· Basic system case for analyser, probes and accessories</li> </ul>	0563 3315 70

Qty.	Instrument / Options / Upgrades	Part no.
	testo 330-2 flue gas analyser incl. rechargeable battery and calibration protocol	0632 3302
	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	0440 3330
	Option: NO meas. cell, meas. range 0 to 3000 ppm, 1 ppm resolution	On request
	Upgrade: NO meas. cell, meas. range 0 to 3000 ppm, 1 ppm resolution	On request
	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




Qty.	Accessories	Part no.
	100-240 V mains unit for mains operation or batt. recharging in analyser	0554 1086
	Spare rechargeable battery with recharging station	0554 1087
	IRDA printer	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
	testo 330 software with analysis and graphics functions, online measurement	0554 3332
	USB connection cable, instrument to PC	0449 0047
	ISO calibration certificate/Flue gas	0520 0003

Qty.	Cases	Part no.
	Basic system case for analyser, probes and accessories	0516 3330
	Basic system case with reinforced base for analyser, probes and additional accessories	0516 3331
	Product system case with small plastic boxes without contents, can be interlocked to basic system case	0516 0328
	Tools system case with tools section without content, can be interlocked to basic system case	0516 0329
	Universal system case w/o pockets, can be interlocked to basic system case	0516 0331
	Measurement case (leather) with drawers for instruments and accessories	0516 0303



Qty.	Spare measurement cells	Part no.
	Spare O2 measurement cell	0390 0092
	Spare CO measurement cell (H2 compensated)	0390 0109
	Spare NOlow measurement cell 0 to 300 ppm	0390 0094
	Spare NO measurement cell 0 to 3000 ppm	On request

Qty.	Probes	Part no.
	<b>Modular flue gas probes, available in 2 lengths, incl. positioning cone, NiCr-Ni thermocouple, 2.2 m hose and particle filter</b>	
	Flue gas probe 180 mm long, Ø 8 mm, Tmax 500 °C	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		
	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, 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 grip clamp and grip, Tmax 500 °C	0554 3330
	Cone 6 mm, steel, with spring clamp and grip, Tmax 500 °C	0554 3329

Additional probes		
	Dual wall clearance probe	 0632 1260
	Gas leak probe, available from December 2004	0632 3330
	Ambient CO probe	 0632 1247
	Ambient CO2 probe	 0632 1240
	Connection cable	0440 0143

Combustion air temperature probe		
	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		
	Mini ambient air probe	0600 3692
	Pipe clamp probe	 0600 4593
	Quick-action surface probe	 0604 0194
	Connection cable	0440 0143

## Sender

Name \_\_\_\_\_

Company \_\_\_\_\_

Department \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_

Signature \_\_\_\_\_