

# Highly efficient flue gas analyzer

testo 320 – Just a few “clicks” away from a heating system diagnosis

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High-resolution colour graphic display

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Quick and easy menu structure

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Storage space for 500 measurement values

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Measurement of flue gas, draught, pressure, ambient CO, differential temperature and gas leak detection

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O<sub>2</sub> and CO sensor and flue gas probe with temperature probe

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TÜV-tested according to EN 50379, Parts 1-3



- O<sub>2</sub>
- CO<sub>2</sub>
- CO
- HPA
- QA
- ETA
- °C

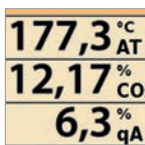
The new testo 320 is a high-quality measuring instrument for efficient flue gas analysis. Its wide measuring range makes it a reliable partner for eliminating malfunctions and emergencies, monitoring legal limit values or for daily routine work servicing heating systems. The numerous measurement menus of the testo 320 are clearly structured.

Standardized menu procedures, which are stored in the instrument specifically for your country, simplify operation – depending on which standards you are dealing with. The high-resolution display allows a detailed presentation of the measurement procedures and is easily legible even under the worst conditions.

# Product properties

**High-resolution colour graphic display**

The measurement menus and measurement values are presented in detail and always easily legible.



**Sensor monitoring**

Integrated traffic light system which continuously monitors the sensor functionality.



**Fast sensor zeroing**

Automatic zeroing of the sensor in only 30 seconds after start-up, and which can be cancelled if not required.



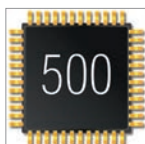
**Sensors exchangeable by the user**

Easy exchange of sensors by the user – no adjustment necessary.



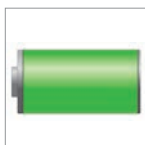
**Memory**

Up to 500 measurement protocols can be saved and called up in the memory of the testo 320.



**Lithium battery**

Operation with a Lithium battery (1500mAh) – no battery change necessary, up to eight hours running time, charging via USB connection possible.



**Attachment**

Integrated magnets for fast attachment to burner/boiler.





**Stamp of approval**

The flue gas analyzer testo 320 is TÜV-tested according to EN 50379, Parts 1-3.



**Robust design**

Robust, durable instrument – ideally suited even to rough surroundings.



**Condensate trap**

Integrated condensate trap – very easily emptied.



**Efficient exchange of probes**

Fast and easy exchange of probes via the probe coupling. All gas paths are connected to the instrument at once with the bayonet connection.



**Probe filter**

Easy exchange of probe filter.



**Flexibility with modular probes**

A range of probe lengths and diameters ensure a high degree of flexibility for all applications. To exchange the probe shaft, it is simply placed on the probe handle and engages.

## Ordering data / Accessories

### testo 320 set for chimneysweeps

0632 3220	testo 320 with H <sub>2</sub> -compensated CO sensor and Bluetooth
0554 1105	USB mains unit
0600 9761	Flue gas probe modular (length 300 mm, Ø 8 mm)
0600 9787	Combustion air probe (length 190 mm)



£ POA

### testo 320 set for heating constructors

0632 3220	testo 320 with H <sub>2</sub> -compensated CO sensor
0554 1105	USB mains unit
0516 3334	testo 320 basic system case
0554 0549	Testo fast printer IRDA
0600 9741	Compact flue gas probe (length 300 mm, Ø 6 mm)
0600 9787	Combustion air probe (length 190 mm)



£ 895.00

Measuring instrument with options	Part no.	£
testo 320 flue gas analyzer; incl. O <sub>2</sub> -/CO sensor without H <sub>2</sub> -compensation, incl. calibration protocol; graphic display;	0632 3220	POA
Option H <sub>2</sub> -compensated CO sensor		POA
Option CO <sub>low</sub> sensor		POA
Bluetooth option		POA
Spare gas sensors	Part no.	£
Spare sensor O <sub>2</sub> for testo 320	0393 0003	84.69
Spare CO sensor (without H <sub>2</sub> -compensation) for testo 320	0393 0053	158.08
Spare CO sensor H <sub>2</sub> -compensated for testo 320	0393 0105	359.91
Spare CO <sub>low</sub> sensor for testo 320	0393 0103	371.20
Smoke tester with oil; soot sheet; for measuring soot in flue gas	0554 0307	105.00
BLUETOOTH printer set with wireless BLUETOOTH interface; incl. 1 roll thermal paper, rechargeable battery and mains unit	0554 0553	301.00
Testo fast printer IRDA with wireless infrared interface; 1 roll thermal paper; 4 AA batteries	0554 0549	171.00
Spare thermal paper for printer, permanent ink	0554 0568	19.49
PC analysis software easyheat, for presenting measurement procedures as diagrams, tables and for managing customer data	0554 3332	144.00
USB mains unit incl. cable	0554 1105	27.83
Spare battery	0515 0046	28.23
Basic system case testo 320 for instrument, probes and accessories	0516 3334	65.21
Basic system case with double base, testo 320, for instrument, probes and accessories; high	0516 3331	95.55
ISO calibration certificate/flue gas	0520 0003	POA

# Probes

<b>Compact basic flue gas probes</b>	<b>Part no.</b>	<b>£</b>
Flue gas probe compact; length 180 mm; Ø 6 mm; Tmax. 500 °C; probe stop; NiCr-Ni thermocouple, 2.2 m hose and particle filter included	0600 9740	<b>121.00</b>
Flue gas probe compact; length 300 mm; Ø 6 mm; Tmax. 500 °C; probe stop; NiCr-Ni thermocouple, 2.2 m hose and particle filter included	0600 9741	<b>134.00</b>

<b>Modular flue gas probes</b>	<b>Part no.</b>	<b>£</b>
Flue gas probe modular, incl. cone for attachment; thermocouple NiCr-Ni; hose 2.2 m; particle filter; length 180 mm; Ø 8 mm; Tmax. 500 °C; TÜV-tested	0600 9760	<b>187.00</b>
Flue gas probe; length 300 mm; Ø 8 mm; Tmax. 500 °C; TÜV approval; probe stop; NiCr-Ni thermocouple; 2.2 m hose and particle filter included	0600 9761	<b>192.00</b>
Flue gas probe; length 180 mm; Ø 6 mm; Tmax. 500 °C; probe stop; NiCr-Ni thermocouple; 2.2 m hose and particle filter included	0600 9762	<b>187.00</b>
Flue gas probe; length 300 mm; Ø 6 mm; Tmax. 500 °C; probe stop; NiCr-Ni thermocouple; 2.2 m hose and particle filter included	0600 9763	<b>196.00</b>
Flue gas probe flexible; length 330 mm; Tmax. 180 °C; short-term 200 °C; bending radius max. 90 °C for measuring at inaccessible points; probe stop; NiCr-Ni-thermocouple; 2.2 m hose and particle filter included	0600 9764	<b>276.00</b>

<b>Probe accessories</b>	<b>Part no.</b>	<b>£</b>
Probe shaft; length 180 mm; 8 mm; Tmax. 500 °C	0554 9760	<b>86.94</b>
Probe shaft; length 300 mm; Ø 8 mm; Tmax. 500 °C	0554 9761	<b>91.25</b>
Probe shaft flexible; length 330 mm; Ø 10 mm; Tmax. 180 °C	0554 9764	<b>194.00</b>
Probe shaft multi-hole; length 300 mm; Ø 8 mm; for mean CO calculation	0554 5762	<b>126.00</b>
Probe shaft multi-hole; length 180 mm; Ø 8 mm; for mean CO calculation	0554 5763	<b>121.00</b>
Hose extension; 2.8 m; extension cable for probe and analyzer	0554 1202	<b>124.00</b>
Hose connection set with adapter for separate gas pressure measurement	0554 1203	<b>25.31</b>
Spare dirt filter, modular probe; 10 off	0554 3385	<b>16.70</b>
Spare particle filter, compact probe; 10 off	0554 0040	<b>19.11</b>

# Probes

<b>Additional probes</b>	<b>Part no.</b>	<b>£</b>
Dual wall clearance probe for O <sub>2</sub> supply air measurement	0632 1260	<b>108.00</b>
Gas leak detection probe; 0 to 10000 ppm CH <sub>4</sub> /C <sub>3</sub> H <sub>8</sub>	0632 3330	<b>364.00</b>
Ambient CO probe, for detecting CO in buildings and rooms; 0 to +500 ppm	0632 3331	<b>340.00</b>
Ambient CO <sub>2</sub> probe, Plug-in head, connection cable 0430 0143 or 0430 0145 required	0632 1240	<b>581.00</b>
Differential temperature set; consisting of 2 Velcro probes and temperature adapter	0554 1208	<b>80.22</b>
Fine pressure probe: highly accurate probe for the measurement of differential pressure and temperature, as well as Pitot tube measurement of flow velocities (see technical data)	0638 0330	<b>285.00</b>
Capillary hose set for 4 Pa measurement	0554 1215	<b>69.16</b>

<b>Combustion air temperature probes</b>	<b>Part no.</b>	<b>£</b>
Combustion air temperature probe, immersion depth 300 mm	0600 9791	<b>158.00</b>
Combustion air temperature probe, immersion depth 190 mm	0600 9787	<b>80.64</b>
Combustion air temperature probe, immersion depth 60 mm	0600 9797	<b>80.64</b>

<b>Additional temperature probes</b>	<b>Part no.</b>	<b>£</b>
Mini ambient air probe; for separate ambient air temperature measurement; 0 to +80 °C	0600 3692	<b>41.37</b>
Very fast reaction surface probe	0604 0194	<b>147.00</b>
Connection cable	0430 0143	<b>45.87</b>

# Technical data

	Measuring range	Accuracy $\pm 1$ digit	Resolution	Adjustment time $t_{90}$
<b>Temperature</b>	-40 to +1200 °C	$\pm 0.5$ °C (0 to +100.0 °C) $\pm 0.5$ % of m.v. (remaining range)	0.1 °C (-40 to +999,9 °C) 1 °C (> +1000 °C)	
<b>Draught measurement</b>	-9.99 to +40 hPa	$\pm 0.02$ hPa or $\pm 5\%$ of m.v. (-0.50 to +0.60 hPa) $\pm 0.03$ hPa (+0.61 to +3.00 hPa) $\pm 1.5\%$ of m.v. (+3.01 to +40.00 hPa)	0.01 hPa with fine draught option 0.001 hPa	
<b>Pressure measurement</b>	0 to +300 hPa	$\pm 0.5$ hPa (0.0 to 50.0 hPa) $\pm 1\%$ of m.v. (50.1 to 100.0 hPa) $\pm 1.5\%$ of m.v. (remaining range)	0.1 hPa with fine draught option 0.01 hPa	
<b>O<sub>2</sub> measurement</b>	0 to 21 Vol. %	$\pm 0.2$ Vol. %	0.1 Vol. %	< 20 s
<b>CO measurement (without H<sub>2</sub>-compensation)</b>	0 to 4000 ppm	$\pm 20$ ppm (0 to 400 ppm) $\pm 5\%$ of m.v. (401 to 2000 ppm) $\pm 10\%$ of m.v. (2001 to 4000 ppm)	1 ppm	< 60 s
<b>CO measurement (H<sub>2</sub>-compensated)</b>	0 to 8000 ppm	$\pm 10$ ppm or $\pm 10\%$ of m.v. (0 to 200 ppm) $\pm 20$ ppm or $\pm 5\%$ of m.v. (201 to 2000 ppm) $\pm 10\%$ of m.v. (2001 to 8000 ppm)	1 ppm	< 40 s
<b>Determination of degree of effectivity (Eta)</b>	0 to 120%		0.1%	
<b>Flue gas loss</b>	0 to 99.9%		0.1%	
<b>CO<sub>2</sub> determination</b> digital calculation from O <sub>2</sub>	0 to CO <sub>2</sub> max	$\pm 0.2$ Vol. %	0.1 Vol. %	
<b>Option CO<sub>low</sub> measurement (H<sub>2</sub>-compensated)</b>	0 to 500 ppm	$\pm 2$ ppm (0 to 39 ppm) $\pm 5\%$ of m.v. (40 to 500 ppm)	0.1 ppm	< 40 s
<b>Ambient CO measurement (with CO probe)</b>	0 to 500 ppm	$\pm 5$ ppm (0 to 100 ppm) $\pm 5\%$ of m.v. (> 100 ppm)	1 ppm	
<b>Gas leak measurement for flammable gases (with gas leak detection probe)</b>	0 to 10.000 ppm CH <sub>4</sub> / C <sub>3</sub> H <sub>8</sub>	Signal optical display (LED) audible signal via buzzer		< 2 s
<b>Ambient CO<sub>2</sub> measurement (with ambient CO<sub>2</sub> probe)</b>	0 to 1 Vol. % 0 to 10.000 ppm	$\pm 50$ ppm or $\pm 2\%$ of m.v. (0 to 5000 ppm) $\pm 100$ ppm or $\pm 3\%$ of m.v. (5001 to 10000 ppm)		
<b>Differential pressure, flow velocity and temperature via fine pressure probe</b>	$\pm 10.000$ Pa 0.15 to 3 m/s max. -40 to +1,200 °C (dependent on probe)	$\pm 0.5$ Pa (0 to 9.99 Pa) plus $\pm 1$ Digit $\pm 3\%$ of m.v. (10 to 10.000 Pa) plus $\pm 1$ Digit $\pm 0.5$ °C (-40 to 100 °C) $\pm 0.5$ % of m.v. (rem. measuring range) plus probe accuracy	0.1 m/s 0.1 °C	

## General technical data

Storage temperature	-20 to +50 °C	Display	Colour graphic display 240 x 320 pixels
Operating temperature	-5 to +45 °C	Weight	573 g
Power supply	Battery: 3.7 V / 2,400 mAh Mains unit: 6 V / 1.2 A	Dimensions	240 x 85 x 65 mm
Memory	500 measurement values	Warranty	Instrument/probe/gas sensors: 24 months Battery: 12 months

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Subject to change without notice.  
All prices are net and valid until 31.12.2014.  
Shipping costs & VAT not included.



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