

# Heavy Duty Residential / Light Commercial Combustion Analyzer

## testo 320

Measures O<sub>2</sub>, CO (up to 4,000 ppm), draft, differential pressure, differential temperature and calculates CO<sub>2</sub>

Optional CO and gas leak detection probes

Integrated NO<sub>x</sub> filter eliminates cross-sensitivity (error) from NO<sub>x</sub> gases

Continuous temperature compensation reduces measurement error during temperature changes

Field replaceable pre-calibrated CO and O<sub>2</sub> sensors

Automatic pump shut-off for CO over range and auto purge at the termination of measurement

Print test data for your records and future reference with optional wireless printer



The testo 320 combustion analyzer is the industry standard in flue gas measurement. Its wide measuring range, versatility and rugged design makes it a reliable partner for commissioning, tuning and troubleshooting heating systems. It is programmed for 20 fuels and features a bright color graphic display, expanded memory, up to 500 measurements, optional PC software, optional Bluetooth (Android only) and much more.

The measurement menus of the testo 320 are clearly structured and make navigation and set-up a breeze. The 320's hardened cam-lock fitting provides leak-free operation and greater test confidence & upgrades are fast and easy with detachable gas sampling probe and field replaceable sensors. The high-resolution icon based display allows a detailed representation of the measurement procedures and is easily legible even under the worst lighting conditions.

# Ordering data / Accessories

Measuring instrument with options	Part no.
testo 320 flue gas analyzer, incl. O <sub>2</sub> sensor, calibration protocol, graphic display	0632 3220
Option CO sensor without H <sub>2</sub> -compensation	
Option H <sub>2</sub> -compensated CO sensor	
Option CO <sub>low</sub> sensor	
Bluetooth option	

Spare gas sensors	Part no.
Spare sensor O <sub>2</sub> for testo 320	0393 0005
Spare CO sensor (without H <sub>2</sub> -compensation) for testo 320	0393 0053
Spare CO sensor H <sub>2</sub> -compensated for testo 320	0393 0105
Spare CO <sub>low</sub> sensor for testo 320	0393 0103

Smoke tester with oil and soot sheet, for measuring soot in flue gas, excl. cone (part no. 0554 9010)	0554 0307
Testo Bluetooth®/IRDA printer incl. 1 roll of printer paper, rechargeable battery and AC power supply	0554 0620
Testo fast printer IrDA with wireless infrared interface; 1 roll thermal paper; 4 AA batteries	0554 0549
Spare thermal paper for printer, permanent ink	0554 0568
PC analysis software easyheat, for presenting measurement procedures as diagrams, tables and for managing customer data	0554 3332
AC power supply with USB cable	0554 1105
Spare battery	0515 5046
Instrument case (height: 5 in.) for instrument, probes and accessories	0516 3300
Instrument case with double base (height: 7 in.) for instrument, probes and accessories	0516 3301
ISO calibration certificate/flue gas	0520 0003

# Probes

Compact basic flue gas probes	Part no.
Flue gas probe compact; length 7 inch; Ø 0.24 inch; Tmax. 500 °C; probe stop; NiCr-Ni thermocouple, 7 foot hose and particle filter included	0600 9740
Flue gas probe compact; length 12 inch; Ø 0.24 inch; Tmax. 500 °C; probe stop; NiCr-Ni thermocouple, 7 foot hose and particle filter included	0600 9741

Modular flue gas probes	Part no.
Flue gas probe modular, incl. cone for attachment; thermocouple NiCr-Ni; hose 7 foot; particle filter; length 7 inches; Ø 0.3 inch; Tmax. 932 °F; TÜV-tested	0600 9760
Flue gas probe; length 12 inch; Ø 0.3 inch; Tmax. 932 °F; TÜV approval; probe stop; NiCr-Ni thermocouple; 7 foot hose and particle filter included	0600 9761
Flue gas probe; length 7 inch; Ø 0.24 inch; Tmax. 932 °F; probe stop; NiCr-Ni thermocouple; 7 foot hose and particle filter included	0600 9762
Flue gas probe; length 12 inch; Ø 0.24 inch; Tmax. 932 °F; probe stop; NiCr-Ni thermocouple; 7 foot hose and particle filter included	0600 9763
Flue gas probe flexible; thermocouple NiCr-Ni; hose 7 foot; dirt filter; length 13 inch; Ø 0.35 inch; Tmax. 356 °F; short-term 392 °F; ideal for measuring at inaccessible points	0600 9770

Probe accessories	Part no.
Probe shaft; length 7 inch; Ø 0.3 inch; Tmax. 932 °F	0554 9760
Probe shaft; length 12 inch; Ø 0.3 inch; Tmax. 932 °F	0554 9761
Probe shaft flexible; length 13 inch; Ø 0.35 inch; Tmax. 356 °F	0554 9770
Probe shaft multi-hole; length 12 inch; Ø 0.3 inch; for mean CO calculation	0554 5762
Probe shaft multi-hole; length 7 inch; Ø 0.3 inch; for mean CO calculation	0554 5763
Hose extension; 9 foot; extension cable for probe	0554 1202
Hose connection set with adapter for separate gas pressure measurement	0554 1203
Spare dirt filter, modular probe; 10 pieces	0554 3385
Spare particle filter, compact probe; 10 pieces	0554 0040

Additional probes	Part no.
Dual wall clearance probe for O <sub>2</sub> supply air measurement	0632 1260
Gas leak detection probe; 0 to 10,000 ppm CH <sub>4</sub> /C <sub>3</sub> H <sub>8</sub>	0632 3330
Ambient CO probe, for detecting CO in buildings and rooms; 0 to 500 ppm	0632 3331
Ambient CO <sub>2</sub> probe, Plug-in head, connection cable 0430 0143 or 0430 0145 required	0632 1240
Differential temperature set; consisting of 2 Velcro probes and temperature adapter	0554 1208
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
Capillary hose set for 4 Pa measurement	0554 1215

Combustion air temperature probes	Part no.
Combustion air temperature probe, immersion depth 7.5 inch	0600 9787
Combustion air temperature probe, immersion depth 2.3 inch	0600 9797

Additional temperature probes	Part no.
Mini ambient air probe; for separate ambient air temperature measurement; 32 to 176 °F	0600 3692
Fast reaction surface probe	0604 0194
Connection cable	0430 0143

# testo 320 Residential / Light Commercial Combustion Analyzer

## Kit 1: Essentials kit (Part no. 0563 3220 70)

Kit includes: Analyzer, 12" flue gas probe, rechargeable battery with universal AC Adaptor, particle filters, case, certificate of conformity

## Kit 2: Essentials kit with printer (Part no. 0563 3220 71)

Kit includes all components Kit 1 PLUS: IRDA wireless printer



Essentials Kit with Printer

## Technical data

Measurement Parameters	Measuring range	Accuracy	Resolution	Response time $t_{90}$
<b>Temperature</b>	-40 to 2,192°F	Accuracy: $\pm 0.5^\circ\text{F}$ (32 to 212°F) Accuracy: $\pm 0.5\%$ of m.v. remaining range	0.1°F: -40 to 1,831°F 1°F: from 1,832°F	
<b>Draught measurement</b>	-4.01 to 16 inH <sub>2</sub> O	$\pm 0.02$ inH <sub>2</sub> O or $\pm 5\%$ of m.v. (at -0.2 to 0.24 inH <sub>2</sub> O) $\pm 0.03$ inH <sub>2</sub> O (0.25 to 1.20 inH <sub>2</sub> O) $\pm 1.5\%$ of m.v. (at 1.21 to 16.05 inH <sub>2</sub> O)	0.01 inH <sub>2</sub> O with fine draught option 0.001 inH <sub>2</sub> O	
<b>Pressure measurement</b>	0 to 120 inH <sub>2</sub> O	$\pm 0.5$ inH <sub>2</sub> O (0.0 to 20 inH <sub>2</sub> O) $\pm 1\%$ of m.v. (at 20.1 to 40 inH <sub>2</sub> O) $\pm 1.5\%$ of m.v. (at 40.1 to 120 inH <sub>2</sub> O)	0.1 inH <sub>2</sub> O with fine pressure option 0.01 inH <sub>2</sub> O	
<b>O<sub>2</sub> measurement</b>	0 to 21 vol. %	$\pm 0.2$ vol. %	01 vol. %	< 20 sec
<b>CO measurement (without H<sub>2</sub> compensation)</b>	0 to 4,000 ppm	$\pm 20$ ppm (0 to 400 ppm) $\pm 5\%$ of m.v. (401 to 2,000 ppm) $\pm 10\%$ of m.v. (2,001 to 4,000 ppm)	1 ppm	< 60 sec
<b>CO measurement (H<sub>2</sub>-compensated)</b>	0 to 8,000 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 2,000 ppm) $\pm 10\%$ of m.v. (2,001 to 8,000 ppm)	1 ppm	< 40 sec
<b>Efficiency testing (Eta)</b>	0 to 120 %		01 %	
<b>Exhaust gas loss</b>	0 to 99.9 %		01 %	
<b>CO<sub>2</sub> determination</b> <small>digital calculation from O<sub>2</sub></small>	0 to CO <sub>2</sub> max	$\pm 0.2$ vol. %	01 %	
<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 sec
<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 combustible gases (with gas leak detector probe)</b>	0 to 10,000 ppm CH <sub>4</sub> / C <sub>3</sub> H <sub>8</sub>	Optical display (LED) Audible alarm via buzzer < 2 sec		
<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 5,000 ppm) $\pm 100$ ppm or $\pm 3\%$ of m.v. (5,001 to 10,000 ppm)		

General technical data			
Storage temp.	-4 to 122 °F	Display	Color graphic display with 240 x 320 pixels
Oper. temp.	23 to 113 °F	Weight	1.25 lbs.
Power supply	Rechargeable battery: 3.7 V / 2,400 mAh AC Adaptor: 6 V/1.2 A	Dimensions	L 9.4 x W 3.4 x H 2.5 inches
Memory	500 readings	Warranty	Instrument/probes/gas sensors: 48 months Rechargeable battery: 12 months



Testo Inc  
40 White Lake Road  
Sparta, NJ 07871  
1-800-227-0729  
www.testo.com  
info@testo.com