

# Flue gas analyzer for industry

testo 340 – Portable measuring instrument for industrial emission measurement

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Measuring range extension for unrestricted measurement at high gas concentrations

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Flue gas analysis with up to 4 gas sensors – freely configurable

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Large selection of probes

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Bluetooth interface

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Convenient measurement data management

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TÜV-tested /EN norm



The handy, easy-to-operate emission measuring instrument testo 340 is the right tool for many different emission measurements. The compact design and the reliable technology make it the ideal measuring instrument for commissioning, service and maintenance work and in test measurements on industrial burners, stationary industrial engines, gas turbines and thermal processes.

The unique measuring range extension allows unrestricted measurements to be carried out even at high gas concentrations. The testo 340 is equipped with an O<sub>2</sub> sensor as standard. Three further gas sensors can be configured individually, in order to be able to adapt the instrument optimally to the respective measurement task. The instrument can also be operated remotely from your Android Smartphone or tablet using the free App.

## Ordering data

**testo 340**

testo 340 flue gas analyzer, incl. rechargeable battery, calibration protocol and carrying strap, equipped with O<sub>2</sub> sensor, integrated flow/differential pressure measurement



Part no. 0632 3340

testo 340 must be equipped with a second gas sensor otherwise the analyzer cannot function. Max. 3 additional sensors can be fitted.

Options	Part no.
Option CO sensor, 0 to 10000 ppm, Resolution 1 ppm	
Option CO <sub>low</sub> sensor, 0 to 500 ppm, Resolution 0.1 ppm	
Option NO sensor, 0 to 4000 ppm, Resolution 1 ppm	
Option NO <sub>low</sub> sensor, 0 to 300 ppm, Resolution 0.1 ppm	
Option NO <sub>2</sub> sensor, 0 to 500 ppm, Resolution 0.1 ppm	
Option: SO <sub>2</sub> sensor, 0 to 5,000 ppm, Resolution 1 ppm	
Option: BLUETOOTH® module	
Option: dilution of all sensors	

Accessories	Part no.
Transport case for flue gas analyzer and probes	0516 3400
Mains unit international 100-240 V AC / 6.3 V DC for mains operation or battery charging in instrument, for mains operation or battery charging in instrument	0554 1096
Software "easyEmission", incl. USB connection cable instrument-PC	0554 3334
Multiple license/"easyEmission" software	0554 3338
Testo fast printer IrDA with wireless infrared interface; 1 roll thermal paper; 4 AA batteries	0554 0549
Testo Bluetooth®/IRDA printer incl. 1 roll of printer paper, rechargeable battery and mains unit	0554 0620
Spare thermal paper for printer, permanent ink	0554 0568
Spare rechargeable battery with charger	0554 1087
Replacement filter for NO sensor (1 pcs.), blocks transverse gas SO <sub>2</sub>	0554 4150
Replacement CO sensor (1 off.), blocks transverse gas SO <sub>2</sub> and NO	0554 4100

Calibration Certificates	Part no.
ISO calibration certificate/flue gas	0520 0003
ISO calibration certificate velocity, hot wire, vane anemometer, Pitot tube; calibration points 5; 10; 15; 20 m/s	0520 0034

## Ordering suggestions

### Your low-budget entry into industrial emission measurement

	Part no.
testo 340 flue gas analyzer	0632 3340
Option CO (H <sub>2</sub> -compensated) measurement module, 0 to 10,000 ppm	
Option BLUETOOTH® module	
Flue gas probe modular 335 mm immersion depth	0600 9766
International mains unit 100-240 V	0554 1096
testo BLUETOOTH® printer	0554 0620
Transport case for measuring instrument and probes	0516 3400

### Monitoring and adjustment work on stationary industrial engines

	Part no.
testo 340 flue gas analyzer	0632 3340
Option CO (H <sub>2</sub> -compensated) measurement module, 0 to 10,000 ppm	
Option NO measurement module, 0 to 4,000 ppm	
Option NO <sub>2</sub> measurement module, 0 to 500 ppm	
Option dilution of all sensors	
Flue gas probe for industrial engines, 335 mm immersion depth*	0600 7555
International mains unit 100-240 V	0554 1096
Software "easyEmission"	0554 3334
Transport case for measuring instrument and probes	0516 3340

\* For measurement on stationary diesel engines, we recommend the flue gas probe with probe pre-filter (0600 7556).

### Service and maintenance work on industrial burners and furnaces

	Part no.
testo 340 flue gas analyzer	0632 3340
Option CO (H <sub>2</sub> -compensated) measurement module, 0 to 10,000 ppm	
Option NO measurement module, 0 to 4,000 ppm*	
Option SO <sub>2</sub> measurement module, 0 to 5,000 ppm	
Flue gas probe modular 700 mm immersion depth	0600 8765
Software "easyEmission"	0554 3334
Transport case for measuring instrument and probes	0516 3340

\*For the measurement of low NO values, we recommend the NOlow sensor (0393 1152).

### Measurements on turbines

	Part no.
testo 340 flue gas analyzer	0632 3340
Option CO (H <sub>2</sub> -compensated) measurement module, 0 to 10,000 ppm*	
Option NOlow measurement module, 0 to 300 ppm	
Option NO <sub>2</sub> measurement module, 0 to 500 ppm	
Option dilution of all sensors	
Flue gas probe for industrial engines, 335 mm immersion depth	0600 7555
International mains unit 100-240 V	0554 1096
Software "easyEmission"	0554 3334
Transport case for measuring instrument and probes	0516 3340

\*For the measurement of low CO values, we recommend the COlow sensor (0393 1102).

# Gas sampling probes

<b>Standard gas sampling probes: Modular flue gas probes, available in 2 lengths, incl. probe stop, NiCr-Ni thermocouple, 2.2 m hose and particle filter</b>	<b>Part no.</b>
Modular flue gas probe 335 mm immersion depth, incl. cone, thermocouple NiCr-Ni (TI) Tmax 500 °C and NO <sub>2</sub> /SO <sub>2</sub> special hose 2.2 m	0600 9766
Modular flue gas probe 700 mm immersion depth, incl. cone, thermocouple NiCr-Ni (TI) Tmax 500 °C and NO <sub>2</sub> /SO <sub>2</sub> special hose 2.2 m	0600 9767
Modular flue gas probe 335 mm immersion depth, incl. cone, thermocouple NiCr-Ni (TI) Tmax 1000 °C and NO <sub>2</sub> /SO <sub>2</sub> special hose 2.2 m	0600 8764
Modular flue gas probe, 700 mm immersion depth, incl. cone, thermocouple NiCr-Ni (TI) Tmax 1000 °C and NO <sub>2</sub> /SO <sub>2</sub> special hose 2.2 m	0600 8765
Modular flue gas probe with pre-filter Ø 14 mm 335 mm immersion depth, incl. cone, thermocouple NiCr-Ni (TI) Tmax 1000°C and NO <sub>2</sub> /SO <sub>2</sub> special hose 2.2 m	0600 8766
Modular flue gas probe with pre-filter Ø 14 mm 700 mm immersion depth, incl. cone, thermocouple NiCr-Ni (TI) Tmax 1000°C and NO <sub>2</sub> /SO <sub>2</sub> special hose 2.2 m	0600 8767

  

<b>Probe accessories modular gas sampling probes</b>	<b>Part no.</b>
Hose extension; 2.8 m; extension cable for probe	0554 1202
Probe shaft with pre-filter Ø 14 mm, length selectable up to 2500 mm, incl. cone, Ø 8 mm, thermocouple NiCr-Ni (TI) Tmax. 500 °C	On request
Probe shaft with pre-filter Ø 14 mm, length selectable up to 2500 mm, incl. cone, Ø 8 mm, thermocouple NiCr-Ni (TI) Tmax. 1000 °C	On request
Spare probe pre-filter (sinter filter) 2 off	0554 3372
Spare dirt filter, modular probe; 10 off	0554 3385
Probe shaft, length 700 mm, incl. cone, Ø 8 mm, Tmax 500 °C	0554 9767
Probe shaft, length 335 mm, incl. cone, Ø 8 mm, Tmax 1000 °C	0554 8764
Probe shaft, length 700 mm, incl. cone, Ø 8 mm, Tmax. 1000 °C	0554 8765

  

<b>Gas sampling probe for measurement on industrial engines</b>	<b>Part no.</b>
Flue gas probe for industrial engines, 335 mm immersion depth incl. probe stop and heat protection plate, Tmax. +1,000 °C, special hose for NO <sub>2</sub> -/SO <sub>2</sub> measurements, length 4 m	0600 7555
Flue gas probe for industrial engines with probe shaft preliminary filter, 335 mm immersion depth incl. probe stop and heat protection plate, Tmax. +1,000 °C, special hose for NO <sub>2</sub> -/SO <sub>2</sub> measurements, length 4 m	0600 7556
Thermocouple for flue gas temperature measurement, NiCr-Ni, length 400 mm, Tmax +1,000 °C, with 4 m connecting cable and additional heat protection	0600 8898

  

<b>Temperature probes</b>	<b>Part no.</b>
Mini ambient air probe; for separate ambient air temperature measurement; 0 to +80 °C	0600 3692
Combustion air temperature probe, immersion depth 60 mm	0600 9797

  

<b>Pitot tubes</b>	<b>Part no.</b>
Pitot tube, 350 mm long, stainless steel, measures flow velocity	0635 2145
Pitot tube, 1000 mm long, stainless steel, measures flow velocity	0635 2345
Connection hose; silicone; length 5 m; max. load 700 hPa (mbar)	0554 0440
Pitot tube, stainless steel, 750 mm long, measures flow velocity with temperature, 3x hoses (5 m long) and heat shield	0635 2042

# Gas sampling probes

Industrial probes	Details	Part no.
<p>Industrial probe set 1200 °C consisting of:</p> <ul style="list-style-type: none"> <li>- unheated handle</li> <li>- unheated probe shaft up to 1200 °C flue gas temperature</li> <li>- unheated gas sampling hose incl. inline filter, length 4 m</li> <li>- thermocouple Type K, length 1.2 m</li> </ul> <p><i>The set can optionally come with an extension tube and probe preliminary filter.</i></p>	<p><b>Probe shaft:</b> T<sub>max.</sub> +1200 °C Length 1.0 m, Ø 12 mm Material 2.4856 alloy 625</p> <p><b>Handle:</b> T<sub>max.</sub> +600 °C Material: 1.4404 stainless steel</p> <p><b>Gas sampling hose:</b> 2-chamber hose with PTFE inner core; length 4.0 m</p> <p><b>TC:</b> Type K, Length 1.2 m, Ø 2 mm T<sub>max.</sub> +1200 °C</p>	0600 7610
<p>Industrial probe set 1800 °C consisting of:</p> <ul style="list-style-type: none"> <li>- unheated handle</li> <li>- unheated probe shaft up to 1800 °C flue gas temperature</li> <li>- unheated gas sampling hose incl. inline filter, length 4 m</li> </ul> <p><i>For temperature measurements &gt; +1370 °C, we recommend a thermocouple Type S.</i></p>	<p><b>Probe shaft:</b> T<sub>max.</sub> +1800 °C Material Al2O3 &gt; 99.7% Length 1.0 m, Ø 12 mm</p> <p><b>Gas sampling hose:</b> 2-chamber hose with PTFE inner core; length 4.0 m</p> <p><b>Handle:</b> T<sub>max.</sub> +600 °C Material: 1.4404 stainless steel</p>	0600 7620
<p>Heated industrial probe set consisting of:</p> <ul style="list-style-type: none"> <li>- heated probe shaft up to 600 °C flue gas temperature</li> <li>- heated gas sampling hose, length 4 m</li> <li>- thermocouple Type K, length 1.2 m</li> </ul> <p><i>The set can optionally come with an extension tube and probe preliminary filter.</i></p>	<p><b>Probe shaft:</b> temperature-proof up to +600 °C Voltage supply 230 V / 50 Hz Length 1.0 m, Ø 25 mm Heating temperature range +200 °C Material stainless steel 1.4571</p> <p><b>Gas sampling hose:</b> corrugated hose with PTFE inner core Length 4.0 m; outside diameter 34 mm Heating temperature range &gt; +120 °C</p> <p><b>TC:</b> Type K Length 1.2 m, Ø 2 mm T<sub>max.</sub> +1200 °C</p>	0600 7630
<p>Extension tube 1200 °C for extending the industrial probe set 1200 °C (0600 7610) and heated industrial probe set (0600 7630)</p> <p><i>The extension tube can be screwed directly onto the unheated probe shaft up to +1200 °C and the heated probe shaft up to +600 °C.*</i></p>	<p><b>Probe shaft:</b> T<sub>max.</sub> +1200 °C Length 1.0 m, Ø 12 mm Material 2.4856 alloy 625</p>	0600 7617
<p>Thermocouple Type K, length 2.2 m</p>	<p>Type K Length 2.2 m, Ø 2 mm T<sub>max.</sub> +1200 °C</p>	0600 7615
<p>Industrial probe preliminary filter for dust-laden flue gas</p> <p><i>The probe preliminary filter can be screwed directly onto the unheated probe shaft up to +1200 °C and the heated probe shaft up to +600 °C.*</i></p>	<p>Material porous silicon carbide T<sub>max.</sub> +1,000 °C, Length 105 mm, Ø 30 mm Filtration grade 10 µm</p>	0600 7616
<p>Heated gas sampling hose</p>	<p>Corrugated hose with PTFE inner core Length 4.0 m; outside diameter 34 mm Heating temperature range &gt; +120 °C</p>	on request
<p>Transport case for probes <i>Suitable for all probes with a total length &gt; 335 mm.</i></p>		0516 7600
<p>Extension cable, 5 m long, between plug-in head cable and instrument</p>		0409 0063
<p>Spare dirt filter (10 off)</p>		0554 3371

\*For ease of tightening and releasing, we recommend the use of ceramic paste on the thread. This is available from retailers.

# Technical data

	Measuring range	Accuracy $\pm 1$ digit	Resolution	Adjustment time $t_{90}$
<b>O<sub>2</sub> measurement</b>	0 to 25 Vol. %	$\pm 0.2$ Vol. %	0.01 Vol. %	<20 sec
<b>CO measurement (H<sub>2</sub> compensated)</b>	0 to 10.000 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 10.000 ppm)	1 ppm	<40 sec
<b>CO<sub>low</sub> measurement (H<sub>2</sub> compensated)</b>	0 to 500 ppm	$\pm 2$ ppm (0 to 39.9 ppm) $\pm 5\%$ of m.v. (remaining range) <sup>x</sup> <small><sup>x</sup> data corresponds to 20°C ambient temperature. Additional temperature coefficient 0.25% of reading/K.</small>	0.1 ppm	<40 sec
<b>NO measurement</b>	0 to 4.000 ppm	$\pm 5$ ppm (0 to 99 ppm) $\pm 5\%$ of m.v. (100 to 1.999 ppm) $\pm 10\%$ of m.v. (2.000 to 4.000 ppm)	1 ppm	<30 sec
<b>NO<sub>low</sub> measurement</b>	0 to 300 ppm	$\pm 2$ ppm (0 to 39.9 ppm) $\pm 5\%$ of m.v. (remaining range)	0.1 ppm	<30 sec
<b>NO<sub>2</sub> measurement*</b>	0 to 500 ppm	$\pm 10$ ppm (0 to 199 ppm) $\pm 5\%$ of m.v. (remaining range)	0.1 ppm	<40 sec
<b>SO<sub>2</sub> measurement*</b>	0 to 5.000 ppm	$\pm 10$ ppm (0 to 99 ppm) $\pm 10\%$ of m.v. (remaining range)	1 ppm	<40 sec
<b>Temperature meas.</b> <small>Probe type Type K (NiCr-Ni)</small>	-40 to +1.200 °C	$\pm 0.5$ °C (0 to +99 °C) $\pm 0.5$ % of m.v. (remaining range)	0.1 °C	
<b>Draught measurement</b>	-40 to +40 hPa	$\pm 0.03$ hPa (-2.99 to +2.99 hPa) $\pm 1.5$ % of m.v. (remaining range)	0.01 hPa	
<b>Differential pressure measurement</b>	-200 to 200 hPa	$\pm 0.5$ hPa (-49.9 to 49.9 hPa) $\pm 1.5$ % of m.v. (remaining range)	0.1 hPa	
<b>Absolute pressure measurement</b>	600 to +1.150 hPa	$\pm 10$ hPa	1 hPa	
<b>Derived parameters</b>				
Efficiency	0 to 120 %		0.1 %	
Flue gas loss	0 to 99.9 %		0.1 %	
Exhaust gas dewpoint	0 to 99.9 °C		0.1 °C	
<b>CO<sub>2</sub> measurement</b> (Calculated from O <sub>2</sub> )	0 to CO <sub>2</sub> max.	$\pm 0.2$ Vol. %	0.1 Vol. %	< 40 sec

\*To avoid absorption, a maximum measurement duration of 2 hours should not be exceeded.



## Country permits BLUETOOTH® wireless transmission for testo 340

The BLUETOOTH® radio module used by Testo is permitted for the following countries and may only be used in those countries, i.e. the BLUETOOTH® wireless transmission may not be used in any other country!

### Europe including all EU member states

Austria, Belgium, Bulgaria, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Great Britain, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden and Turkey

### European countries (EFTA)

Iceland, Liechtenstein, Norway, Switzerland

### Non-European countries

Canada, USA, Japan, Ukraine, Australia, Columbia, El Salvador, Mexico, Venezuela, Ecuador, New Zealand, Bolivia, Dominican Republic, Peru, Chile, Cuba, Costa Rica, Nicaragua, Korea, Belarus.

# Technical data

## Measuring range extension

Single dilution, factor 5 (standard)	Measuring range	Accuracy	Resolution
<b>CO measurement (H<sub>2</sub> compensated)</b>	700 ppm to 50.000 ppm	±10 % of m.v. (additional error)	1 ppm
<b>CO<sub>low</sub> measurement (H<sub>2</sub> compensated)</b>	300 ppm to 2.500 ppm	±10 % of m.v. (additional error)	0.1 ppm
<b>NO measurement</b>	500 ppm to 20.000 ppm	±10 % of m.v. (additional error)	1 ppm
<b>NO<sub>low</sub> measurement</b>	150 ppm to 1.500 ppm	±10 % of m.v. (additional error)	0,1 ppm
<b>SO<sub>2</sub> measurement</b>	500 ppm to 25.000 ppm	±10 % of m.v. (additional error)	1 ppm

## Dilution of all sensors, factor 2 (option, Part no. 0440 3350)

<b>O<sub>2</sub> measurement</b>	When measuring range extension switched on, over all sensors: 0 to 25 Vol. %	±1 Vol. % additional error (0 to 4.99 Vol. %) ±0.5 Vol. % additional error (5 to 25 Vol. %)	0.01 Vol. %
<b>CO measurement (H<sub>2</sub> compensated)</b>	700 ppm to 20.000 ppm	±10 % of m.v. (additional error)	1 ppm
<b>CO<sub>low</sub> measurement (H<sub>2</sub> compensated)</b>	300 ppm to 1.000 ppm	±10 % of m.v. (additional error)	0.1 ppm
<b>NO measurement</b>	500 ppm to 8.000 ppm	±10 % of m.v. (additional error)	1 ppm
<b>NO<sub>low</sub> measurement</b>	150 ppm to 600 ppm	±10 % of m.v. (additional error)	0.1 ppm
<b>NO<sub>2</sub> measurement</b>	200 ppm to 1.000 ppm	±10 % of m.v. (additional error)	0.1 ppm
<b>SO<sub>2</sub> measurement</b>	500 ppm to 10.000 ppm	±10 % of m.v. (additional error)	1 ppm

## General technical data

Memory Maximum Per folder Per site	100 folders Max. 10 sites Max. 200 logs The max. number of logs is determined by the number of folders or sites
User-defined fuels	10 user-defined fuels incl. test gas as fuel
Regulated diaphragm pump Pump flow Hose length Max. pos. press./flue gas Max. neg. press./flue gas	0.6 l/min (regulated) max. 7.8 m (corresponds to two probe hose extensions) +50 mbar -200 mbar
Weight	960 g
Dimensions	283 x 103 x 65 mm
Storage temperature	-20 to +50 °C
Operating temperature	-5 to +50 °C

Display	Graphic display 160 x 240 pixels
Power supply	Battery block 3.7 V / 2.4 Ah Mains unit 6.3 V / 2 A
Housing material	TPE PC
Protection class	IP40
Warranty Analyzer	2 years (excluding working parts, e.g. sensors, sensor replacement filter)
Rech. batt. Sensors	1 year CO, NO, CO <sub>low</sub> , NO <sub>low</sub> , NO <sub>2</sub> , SO <sub>2</sub> : 1 year O <sub>2</sub> : 1.5 years

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