

The right flue gas analyser for ev

All about  
industrial flue  
gas analysis

Tecon 500-M/PL - Tecon 404  
Control Unit



# ery requirement

The approved reference flue gas analyser for continuous emission measurement

testo 360



The flexible, portable flue gas analyser (measurement system)

testo 350 M/XL



The compact flue gas analyser for fast emission monitoring

testo 300 M-I  
testo 300 XL-I



Introduction to portable flue gas measurement

testo 325-I CO<sub>high</sub> [O<sub>2</sub>]



Convenient introductory instrument for emission monitoring and tuning of gas burners

testo 325-I  
CO<sub>low</sub> set



Convenient introductory instrument for emission monitoring of engines and burners

testo 325-I  
NO set

Convenient introductory instrument for emission monitoring on coal and heavy oil burners

testo 325-I  
SO<sub>2</sub> set

		1	1	1	2	2	3	3	4	6	7
Maximum number of measurement cells											
Possible measurable parameters	O <sub>2</sub>				■	■	■	■	■	■	■
	CO				■	■	■	■	■	■	■
	CO <sub>low</sub>	■					■	■	■	■	
	NO		■				■	■	■	■	■
	NO <sub>low</sub>								■	■	
	NO <sub>2</sub>								■	■	■
	SO <sub>2</sub>			■			■	■	■	■	■
	H <sub>2</sub> S									■	
	HC									■	■
	CO <sub>2</sub> (NDIR)								■	■	■
Measurement range extension for the following measurement cells									CO	CO	CO, CO <sub>2</sub> , NO, NO <sub>2</sub> , SO <sub>2</sub>
Protection of CO measurement cell by manual switch-off								■			
Setting switch-off thresholds in measurement cells when specified concentrations are reached							■	■	■	■	■
Built-in Peltier measurement gas preparation unit									■	■	■
Data logger operation lasting several hours and days									■	■	■
Connection of robust, modular sampling probes for industrial applications							■	■	■	■	■
Easy-to-change measurement cells without test gas adjustment by the user		■	■	■	■	■	■	■	■	■	■
Analysis software for meas. data management incl. analysis and graphics function, online meas.							■	■	■	■	■
Built-in data memory							20 data blocks	100 data blocks	250'000 readings	250'000 readings	depending on laptop used
Interfaces for data transfer to PC							RS232	RS232	RS232	RS232	RS232

## Industrial flue gas – Affordable analysis and documentation

### testo 325-I

testo 325-I provides affordable flue gas analysis for CO, NO and SO<sub>2</sub>. It combines precision with user-friendly operation and low costs. It is the ideal instrument for checking emissions and monitoring thermal processes.

- User-friendly operation and handling – Large display
- Measurement cell can be easily changed by the user
- Magnetic SoftCase protects from dirt and impact



Prints readings with date and time



Easy to service condensate trap

Adjusts flue gas feedback for NO<sub>x</sub> reduction

Printer and Accessories	Part no.
Testo printer with cordless IRDA and infrared interface, 1 roll of thermal paper and 4 round cell batteries, For printout of reading on site	0554 0547
Recharger for instrument and printer (with 4 standard rech. batteries)	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.
Sealing cone with knurled screw for sampling probe	0554 9050
Power unit 230 V/ 8 V/ 1 A, for instrument (European plug), For mains operation and battery recharging	0554 1084
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 elastic plastic with magnetic plate, carrier strap; Protects instrument from dirt and impact	<cmsattr
<cmsattr A="120" O="4678" L="12" S="145" P="32489" />; Protects instrument from dirt, moisture and impact	0516 0444
Transport case (plastic) for instrument, probes and accessories, For safe and orderly storage	0516 3250
Alu. case for analyser, probe and accessories, Probes in lid make it easy to find parts in case	0516 0325

Technical data	SO <sub>2</sub>	NO	CO <sub>low</sub>
Meas. range	0 to +3000 ppm SO <sub>2</sub>	0 to +1000 ppm NO	0 to +2000 ppm CO
Accuracy ±1 digit	±5% of mv (+400 to +3000 ppm SO <sub>2</sub> )	±5% of mv (+400 to +1000 ppm NO)	±5% of mv (+400 to +2000 ppm CO)
Resolution	1 ppm SO <sub>2</sub>	1 ppm NO	1 ppm CO
Reaction time	80 s	60 s	60 s

#### testo 325-I SO<sub>2</sub>

##### SO<sub>2</sub> Set

SO<sub>2</sub> set includes analyser and sampling probe (with Tygon® hose), with batteries and calibration protocol

Part no. 0563 3260

- Checks emissions in coal and heavy oil burners
- Monitors flue gas desulphurisation systems
- Process monitoring in the glass and ceramics industry

#### testo 325-I NO

##### NO Set

NO set includes analyser and sampling probe, with batteries and calibration protocol

Part no. 0563 3261

- Checks emissions in motors and burners
- Monitors nitrogen removal systems/catlaytic converters
- Adjusts flue gas feedback for NO<sub>x</sub> reduction

#### testo 325-I CO<sub>low</sub>

##### CO<sub>low</sub> Set

CO<sub>low</sub> set includes analyser and sampling probe, with batteries and calibration protocol

Part no. 0563 3262

- Emission control and adjustment of gas burners
- Localisation of ambient air leaks in long flue gas paths

#### Common data

Dimensions	216 x 68 x 47 mm
Weight	500 g
Oper. temp.	+4 to +45 °C
Storage temp.	-20 to +50 °C
Battery type	4 AA batteries
Battery life	4 h
Material/Housing	ABS
Power supply	Mains unit
Voltage	115/230 V / 50/60 Hz
Display	LCD, 2 lines
Warranty:	
Measuring instrument:	2 years (excluding working parts, e.g. measurement cells, ...)
Measurement cells:	6 months
Power supply:	Battery or power unit

Description	Illustration	Part no.
Sampling probe, 700 mm immersion depth, incl. cone, Tmax +1000°C, 3 m hose	700 mm Ø 6 mm	0699 3451/3
Sampling probe, 300 mm, Ø 6 mm, Tmax. +500 °C, 3 m hose, without handle, is included in SO <sub>2</sub> set, NO set and CO <sub>low</sub> set (see Figure above)		

## Your introduction to portable flue gas analysis

### testo 325-I CO<sub>high</sub> [O<sub>2</sub>]

The testo 325-I CO<sub>high</sub> [O<sub>2</sub>] is your step to affordable flue gas analysis. Easy handling and low costs make it the ideal portable partner for

- checking the atmosphere of thermal processes (funnel furnaces, hardening furnaces, smelting and annealing)
- adjusting process burners and gas motors.

The readings are displayed constantly on the display for as

long as the pump is running.

- Measurement cells can be easily changed by the user
- Instrument protection on account of detachable condensate trap



Prints readings on site with date, time



Special flue gas probe with 3 m hose



Tuning motors with the CO<sub>high</sub> [O<sub>2</sub>] analyser

#### testo 325-I CO<sub>high</sub>

Flue gas analyser with rechargeable batteries and calibration protocol

Part no. 0632 3264

#### testo 325-I CO<sub>high</sub> [O<sub>2</sub>]

Flue gas analyser with rechargeable batteries and calibration protocol

Part no. 0632 3265

Accessories Ordering data	Part no.
Softcase made of elastic plastic	0516 2572
Testo printer with cordless IRDA and infrared interface, 1 roll of thermal paper and 4 round cell batteries	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
Power unit 230 V/ 8 V/ 1 A, for instrument (European plug), For mains operation and battery recharging	0554 1084
Spare particle filter (10 off)	0554 0040
Transport case (plastic) for instrument, probes and accessories, For safe and orderly storage	0516 3250

Technical data	CO	O <sub>2</sub>	Type K (NiCr-Ni)
Meas. range	0 to 7 Vol. %	0 to 21 Vol. %	-40 to +1000 °C
Accuracy ±1 digit	±40 ppm (0 to 0.08 Vol. %) ±5% of mv (0.08 to 0.2 Vol. %) ±10% of mv (0.2 to 7 Vol. %)	±0.2 Vol. %	±0.5 °C (-40 to +99.9 °C) ±0.5 % of mv (+100 to +1000 °C)
Resolution	0.001 Vol. %	0.1 Vol. %	0.1 °C
Oper. temp.	-5 to +45 °C	Storage temp.	-20 to +50 °C
Warranty	Meas. instr.: 2 years (excluding wear parts, e.g. meas. cells, ...); O <sub>2</sub> meas. cell: 1.5 years; CO meas. cell: 1 year		

#### Recommended Set: Basic Set testo 325-I CO<sub>high</sub> [O<sub>2</sub>] in case

Flue gas analyser with rechargeable batteries and calibration protocol	0632 3265
Softcase made of elastic plastic	0516 2572
Power unit 230 V/ 8 V/ 1 A, for instrument (European plug), For mains operation and battery recharging	0554 1084
Flexible flue gas probe, specially for measuring motor emissions, T <sub>max</sub> +500°C, 3 m hose	0600 9640
Spare particle filter (10 off)	0554 0040
Transport case (plastic) for instrument, probes and accessories, For safe and orderly storage	0516 3250

Description	Illustration	Part no.			
Sampling probe, 700 mm immersion depth, incl. cone, T <sub>max</sub> +1000°C, 3 m hose	700 mm Ø 8 mm	0699 3451/3			
Flexible flue gas probe, specially for measuring motor emissions, T <sub>max</sub> +500°C, 3 m hose	Max. immersion depth: 235 mm Flexible range: 160 mm Ø 10 mm	0600 9640			
Description	Illustration	Meas. range	Accuracy	t <sub>99</sub>	Part no.
Waterproof immersion/penetration probe	110 mm Ø 4 mm	-60 to +400 °C	Class 2	7 s	0602 1292 Conn.: Fixed cable
Pipe wrap probe with Velcro strip, for temperature measurement on pipes with diameter up to max. 120 mm, T <sub>max</sub> +120°C	395 mm 20 mm	-50 to +120 °C	Class 1	90 s	0628 0020 Conn.: Fixed cable
Robust, affordable air probe	110 mm Ø 4 mm	-60 to +400 °C	Class 2	25 s	0602 1792 Conn.: Fixed cable

## testo 330 M-I / XL-I – Compact flue gas analyser for fast emission “checks”

### How many ppm NO are there 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 exclusive sensors, developed especially for

your respective applications, are unbeatable in terms of accuracy; confirmed also by independent test institutes such as TÜV.

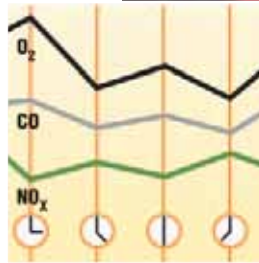
The competence of our engineers is held in high esteem by expert groups and committees in Berlin and Brussels where they are involved in the developments of future guidelines in their capacity as representatives of industry.

A comprehensive exchange of knowledge and experience with official measurement institutes around the world (e.g. DKD for humidity, temperature) ensures that your Testo measuring instrument can hold up to any comparison of accuracy. 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.



Built-in flow and mass flow measurement (optional)



Long-term measurement lasting several hours



Softcase with magnetic holder



Measurement cells can be easily changed by user without test gas



## testo 300 M-I / testo 300 XL-I

### testo 300 M-I

Quick flue gas checks are of interest for all industrial burners. The testo 300 M-I/XLI flue gas analyser combines the accuracy and efficiency of large measuring systems. It is the ideal partner for tuning burners, emission checks and checking the atmosphere in the production process.

#### All in one instrument:

Basic version testo 300 M-I: analysis of °C, O<sub>2</sub>, CO; calculation of CO<sub>2</sub>, Lambda, efficiency

Optional: NO or SO<sub>2</sub>; parallel differential pressure, velocity and mass flow measurement; calculation of flue gas dew point

- Large, illuminated display with clear user instructions and all of the important parameters at a glance
- Data memory for 20 measurements, documentation of readings via cordless infrared printer
- RS 232 interface to PC: data exchange with Testo Software; online measurements
- Mains or optional rechargeable battery operation with up to 4 hours' long-term measurements (not with compact gas drier)
- Easy to change rechargeable battery and measuring cell on site
- Ready to operate 1 minute after switch-on
- Gas units displayed in ppm or mg/m<sup>3</sup>
- Can be adjusted to measuring ranges specific to application using test gas on location

### testo 300 XL-I

#### Additional benefits of testo 300 M-I:

- Attachable printer (can also be used separately). The SoftCase protects the analyser from dirt and impact
- Larger memory for 100 complete measurements
- Memory upgrade for 400 complete measurements (optional)
- Differential temperature measurement
- Manual CO switch-off to continue measurement in presence of high CO concentrations
- Measurement of CO level in ambient air protects from CO poisoning (accessories)
- Detection of leaks in gas pipes protects from explosion (accessories)



testo 300 M-I: Testo printer



testo 300 XL-I: Infrared printer can be attached or used separately



Burner tuning with testo 300 XL-I and mini gas preparation unit connected

#### testo 300 M-I

Flue gas analyser, incl. batteries and calibration protocol; for measuring O<sub>2</sub>, CO<sub>2</sub>, CO (with H<sub>2</sub> compensation), NO (optional), SO<sub>2</sub> (optional), absolute temperature, differential pressure (optional), velocity (optional), mass flow/volume flow (optional), flue gas dew point (optional), efficiency, flue gas loss, excess air

Part no. 0563 0311

#### testo 300 XL-I

Flue gas analyser, incl. batteries and calibration protocol; for measuring O<sub>2</sub>, CO<sub>2</sub>, CO (with H<sub>2</sub> compensation), NO (optional), SO<sub>2</sub> (optional), temperature, differential pressure (optional), velocity (optional), mass flow, volume flow, flue gas dew point (optional), efficiency, flue gas loss, excess air

Part no. 0563 0301

## Good reasons for flue gas measurement

### Flue gas duct

testo 300-I is portable (battery operated) which makes it easy to take measurements in hard to reach places in the flue gas duct. Flue gas dew point measurement is used for quick and easy checks on the filter and to locate ambient air leaks.

### Emission checks

Flue gas velocity can be measured simultaneously when emissions are checked. For example, the position of a stationary sample probe can be checked. The testo 300-I can be field calibrated with cal gas to accurately measure the emission value.

### Combustion chamber meas.

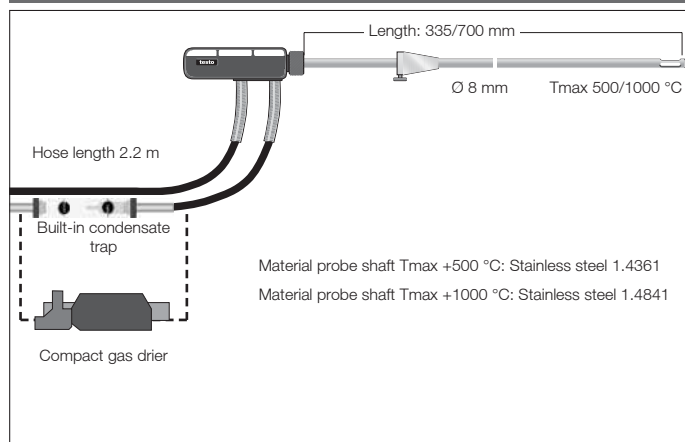
testo 300-I has very wide measuring ranges for the reliable detection of CO "nests" and to check for reduced atmosphere. The sampling probes can be used at up to 1800°C. In extreme conditions, the CO measuring cell in testo 300 XL-I can be switched out of the gas path.

### Burner adjustment

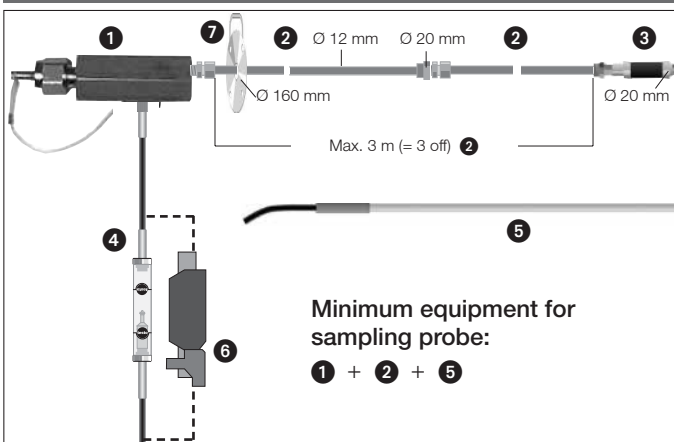
The testo 300-I calculates air ratio and efficiency to optimise burner operation. The pressure in the combustion chamber is measured parallel to the flue gas values. This is particularly important for multi-stage burners. Measurements lasting several hours are possible with the optional mini gas preparation unit.

## Suitable probes at a glance

### Ordering data for standard probes



### Ordering data for modular industrial probes



#### Standard probes 335 mm long

#### Part no.

##### Basic sampling probe, 335 mm long

Up to +500°C

0600 7431

<b>Options:</b>	Hose, 5 m long (not for SO <sub>2</sub> measurements)	0440 7440
	Special hose for SO <sub>2</sub> measurements, 2.2m long, gas path in PTFE	0440 7439
	Outer shaft with filter, Tmax. +800 °C, 335 mm long, for dusty flue gases, 3 µm pore size, probe shaft stainless steel 1.4841	0440 7435
	Compact gas drier with automatic emptying function	0440 7433
	Mains unit to supply power to compact gas drier and testo 300M-I/XL-I, incl. adapter cable	0554 3376

##### Basic sampling probe, 335 mm long

##### Heat-proof probe pipe, 335 mm long, Tmax. +1000°C

Up to +1000°C

0600 7431

0440 7437

<b>Options:</b>	Hose, 5 m long (not for SO <sub>2</sub> measurements)	0440 7440
	Special hose for SO <sub>2</sub> measurements, 2.2m long, gas path in PTFE	0440 7439
	Outer shaft with filter, Tmax. +800 °C, 335 mm long, for dusty flue gases, 3 µm pore size, probe shaft stainless steel 1.4841	0440 7435
	Compact gas drier with automatic emptying function	0440 7433
	Mains unit to supply power to compact gas drier and testo 300M-I/XL-I, incl. adapter cable	0554 3376

#### Standard probes 700 mm long

#### Part no.

##### Basic sampling probe, 700mm long

Up to +500°C

0600 7432

<b>Options:</b>	Hose, 5 m long (not for SO <sub>2</sub> measurements)	0440 7441
	Special hose for SO <sub>2</sub> measurements, 2.2m long, gas path in PTFE	0440 7439
	Outer shaft with filter, Tmax. +800°C, 700mm long, for dusty flue gases, 3 µm pore size, probe shaft: stainless steel 1.4841	0440 7436
	Compact gas drier with automatic emptying function	0440 7433
	Mains unit to supply power to compact gas drier and testo 300M-I/XL-I, incl. adapter cable	0554 3376

##### Basic sampling probe, 700mm long

##### Heat-proof probe pipe, 700mm long

Up to +1000°C

0600 7432

0440 7438

<b>Options:</b>	Hose, 5 m long (not for SO <sub>2</sub> measurements)	0440 7441
	Special hose for SO <sub>2</sub> measurements, 2.2m long, gas path in PTFE	0440 7439
	Outer shaft with filter, Tmax. +800°C, 700mm long, for dusty flue gases, 3 µm pore size, probe shaft: stainless steel 1.4841	0440 7436
	Compact gas drier with automatic emptying function	0440 7433
	Mains unit to supply power to compact gas drier and testo 300M-I/XL-I, incl. adapter cable	0554 3376

#### Industrial probes

#### Part no.

1	Adapter, non-heated	0600 7911
2	Extension pipe to +600 °C, stainless steel 1.4571 Extension pipe to +1200 °C, Inconel 625	0600 7802 0600 7804
	Non-heated sampling pipe to +600 °C, stainless steel 1.4571	0600 7801
	Non-heated sampling pipe to +1200 °C, Inconel 625	0600 7803
	Non-heated sampling pipe to +1800 °C, Al-Oxide	0600 7805
3	Preliminary filter for dusty flue gases, ceramic Filter fineness 20 µm, dust: 20 g/m <sup>3</sup> , can be screwed onto extension pipes, not onto sampling pipes	0554 0710
4	Sampling hose, 2.2 m long Sampling hose, 4m long	0554 3378 0554 3379
5	Thermocouple, NiCr-Ni, -200 to +1000 °C, Inconel 625, 1.2 m long Thermocouple, NiCr-Ni, -200 to +1000 °C, Inconel 625, 2.2 m long Thermocouple, NiCr-Ni, -200 to +1000 °C, Inconel 625, 3.2 m long	0430 0065 0430 0066 0430 0067
6	Compact gas drier with automatic emptying function, To protect from condensate and for accurate SO <sub>2</sub> measurements Mains unit to supply power to compact gas drier and testo 300M-I/XL-I, incl. adapter cable	0440 7433 0554 3376
7	Mounting flange, stainless steel 1.4571	0554 0760

#### For testo 300 XL-I only

#### Illustration

#### Meas. range

#### t<sub>90</sub>

#### Other features

#### Part no.

Gas leak detection probe to detect leaks in gas heating systems



0 to +10000 ppm CH<sub>4</sub>

2 s

1st alarm limit: 200 ppm CH<sub>4</sub>  
 2nd alarm limit: 10.000 ppm CH<sub>4</sub>  
 Alarm: optical display (LED) and audible signal (buzzer) triggered if alarm limit is exceeded

0632 1246

Ambient CO probe to measure CO level in ambient air



0 to +500 ppm CO

35 s

0632 1247

## Suitable probes at a glance / Technical data

For testo 300 M-I and 300 XL-I	Illustration	Meas. range	Accuracy	t <sub>99</sub>	Conn.	Part no.
Mini ambient air probe, Tmax +80°C, for separate ambient air temperature measurement		0 to +80 °C				0600 3692
Pipe wrap probe for pipes with diameter of up to 2", for flow/return temp. meas. in hydronic systems		-60 to +130 °C	Class 2	5 s	Fixed cable	0600 4593
Spare meas. head for pipe wrap probe		-60 to +130 °C	Class 2	5 s		0602 0092
Quick-action surface probe with sprung thermocouple strip, measuring range short-term to +500°C		-200 to +300 °C	Class 2	3 s	Plug-in head, connection cable 0430 0143 or 0430 0145 required	0604 0194
Pitot tubes for flow measurement	Illustration	Meas. range	Probe type	Part no.		
Pitot tube, 350 mm long, stainless steel, measures velocity speed		Oper. temp. 0 to +600 °C		0635 2145		
Pitot tube, 1000 mm long, stainless steel, measures velocity speed		Oper. temp. 0 to +600 °C		0635 2345		
Pitot tube, stainless steel, 350 mm long, measures velocity with temperature measurement, 3 x hoses (5 m long) and heat protection plate		-40 to +1000 °C	Type K (NiCr-Ni)	0635 2041		
Pitot tube, stainless steel, 750 mm long, measures velocity with temperature measurement, 3x hoses (5 m long) and heat protection plate		-40 to +1000 °C	Type K (NiCr-Ni)	0635 2042		
Accessories Ordering data						Part no.
Hose connection set for differential pressure and velocity measurement, 2 silicone hoses à 2.5 m, 1 silicone hose 0.3 m, Ø 4 and 6 mm adapter						0554 0316
Cable, 1.5 m long, connects probe with plug-in head to meas. instrument, PUR coating material						0430 0143
Cable, 5 m long, connects probe with plug-in head to measuring instrument, PUR coating material						0430 0145

### Technical data for both testo 300 M-I and testo 300 XL-I analysers

Parameters	Meas. range	Accuracy	Resolution	Reaction time	Measurement procedure
O <sub>2</sub>	0 to +25 Vol. % O <sub>2</sub>	±0.8% of fsv (0 to +25 Vol. % O <sub>2</sub> )	0.1 Vol. % O <sub>2</sub>	t <sub>95</sub> 20 s	Electrochemical measurement cell
CO <sub>2</sub>	0 to CO <sub>2</sub> max Vol. % CO <sub>2</sub>		0.1 Vol. % CO <sub>2</sub>	t <sub>25</sub> 20 s	Calculated from O <sub>2</sub>
CO (with H <sub>2</sub> compensation)	0 to +10000 ppm CO	±5% of mv (+200.1 to +10000 ppm CO) ±10 ppm CO (0 to +200 ppm CO) <sup>2</sup>	1 ppm CO	t <sub>90</sub> 40 s	Electrochemical measurement cell
NO (optional) <sup>1</sup>	0 to +3000 ppm NO	±5% of mv (+100.1 to +3000 ppm NO) ±5 ppm NO (0 to +100 ppm NO) <sup>2</sup>	1 ppm NO	t <sub>90</sub> 40 s	Electrochemical measurement cell
SO <sub>2</sub> (optional) <sup>1</sup>	0 to +5000 ppm SO <sub>2</sub>	±5% of mv (+200.1 to +5000 ppm SO <sub>2</sub> ) ±10 ppm SO <sub>2</sub> (0 to +200 ppm SO <sub>2</sub> ) <sup>2,3</sup>	1 ppm SO <sub>2</sub>	t <sub>90</sub> 40 s	Electrochemical measurement cell
Temperature	-40 to +1200 °C	±0.5% of mv (+101 to +1200 °C) ±0.5 °C (0 to +100 °C)	0.1 °C (0 to +1000 °C) 1 °C (+1001 to +1200 °C)	See probe data	Thermocouple Type K NiCr-Ni to DIN
Differential pressure (optional)	-80 to +80 hPa	±0.5% of mv (+20.1 to +80 hPa) ±0.1 hPa (0 to +20 hPa)	0.01 hPa	t <sub>95</sub> 2 s	DMS sensor
Flow, mass flow, volume flow measurement (optional)	0 to +40 m/s	See differential pressure	0.1 m/s	t <sub>95</sub> 2 s	Calculation from differential pressure (Pitot tube), temperature, gas density and gas concentration
Flue gas dewpoint (optional) <sup>4</sup>	0 to +99.9 °C td		0.1 °C td	20 s	Calculation from O <sub>2</sub> , temperature and fuel
Efficiency	0 to +120 %		0.1 %	20 s	Calculation from O <sub>2</sub> , temperature and fuel
Flue gas loss	-20 to +99.9 % qA		0.1 % qA	20 s	Calculation from O <sub>2</sub> , temperature and fuel
λ Excess air	+1 to +20		0.01	20 s	Calculation from O <sub>2</sub> , temperature and fuel

<sup>1</sup> NO and SO<sub>2</sub> measurement cells cannot be used together

<sup>2</sup> When adjusting to application range with test gas

<sup>3</sup> A gas preparation unit must be used to avoid adsorption

<sup>4</sup> Errors due to gas cleaning unit (e.g. gas desulphurising unit) or withdrawal of humidity

Dimensions	250 x 85 x 65 mm	Material/Housing	ABS
Weight	700 g	Battery type	4 AA batteries
Storage temp.	-20 to +50 °C	Voltage	115/230 V / 50/60 Hz
Oper. temp.	+4 to +45 °C		

Additional technical data for testo 300 M-I/XL-I:  
 Memory: 20 data blocks (testo 300 M-I)  
 Memory: 100 data blocks (testo 300 XL-I)  
 Flow of built-in pump: approx. 0.8 l/min  
 Max. positive pressure at flue gas inlet: 30 hPa (300 mm water column)  
 Max. negative pressure at flue gas inlet: 90 hPa (900 mm water column)  
 Display: Graphics display 128 x 100 pixels

Power supply: Via plug-in mains unit, batteries or exchangeable rech. batteries  
 No. of measuring cells: max. 3 (O<sub>2</sub>, CO standard, NO or SO<sub>2</sub> optional)  
 Warranty for testo 300 M-I and testo 300 XL-I:  
 Analysers: 2 years (excluding working parts e.g. measuring cells)  
 CO/NO/SO<sub>2</sub> measuring cell: 1 year  
 O<sub>2</sub> measuring cell: 1 1/2 years

### Additional technical data only for testo 300 XL-I

CO ambient measurement (with CO probe)	2nd alarm limit: 10000 ppm CH <sub>4</sub>
Measuring range: 0 to 500 ppm	Signal: optical display (LED) for 1st and 2nd alarm limit, audible buzzer alarm
Accuracy: ±5 ppm (0 to 100 ppm)	Reaction time t <sub>90</sub> : less than 2 s
±5 % of reading (greater than 100 ppm)	
Resolution: 1 ppm	
Reaction time t <sub>90</sub> : approx. 35 s	
Gas leak measurement for combustible gases (with gas leak detection probe):	
1st alarm limit: 200 ppm CH <sub>4</sub>	



## Accessories

### Software

Economical software for fast and user-friendly management of saved measured data with convenient graphics and analysis functions such as tables, graphics as well as online measurement and barcode printout.



Economical software, Windows® software for data management

Part no. 0554 0310

### Compact gas drier

During long-term and efficient SO<sub>2</sub> measurements, condensate must be prevented from getting into the analyser and causing damage. Therefore in order to protect the analyser, simply replace the condensate trap in the sampling hose with a mini gas preparation unit which cools the flue gas. Condensate develops and is automatically pumped out via the built-in hose pump.



Compact gas drier with automatic emptying function

Part no. 0440 7433

### Case

Transport case (plastic) for measuring instrument, probes, For secure and orderly storage



Transport case (plastic) and spacious aluminium case

Transport case (plastic)

Part no. 0516 0300

Aluminium case for measuring instrument, probes (also for 700 mm flue gas probes), Pitot tube and accessories

Aluminium case

Part no. 0516 0305

See Accessories for more cases

### Attachable printer / Softcase for testo 300 XL-I

Practical infrared printer for attachment to testo 300 XL-I or for separate operation up to 2 m away. The SoftCase, made of flexible plastic, protects the printer from dirt and impact.



Attachable, infrared thermal printer with particle/impact protection (for testo 300 XL-I)

Attachable printer

Part no. 0554 0570

SoftCase

Part no. 0516 0411

Printer and Accessories	Part no.
Testo printer with cordless IRDA and infrared interface, 1 roll of thermal paper and 4 round cell batteries, For printout of reading on site	0554 0547
Spare thermal paper for printer (6 rolls)	0554 0569
Recharger for printer (with 4 standard rech. batteries), Rechargeable batteries are recharged externally	0554 0110
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
Rechargeable battery set for instrument (4 rechargeables 2.4V/700mAh), Selected for quick recharging in instrument	0554 0196
NO measuring cell, Built-in in flue gas analyser	0440 3922
NO measuring cell (upgrade), For subsequent installation in flue gas analyser	0554 3922
SO <sub>2</sub> measuring cell, Integrated in flue gas analyser	0440 3923
SO <sub>2</sub> measuring cell (upgrade), For subsequent installation in the testo 300 I analyser	0554 3923
Integrated velocity/differential pressure measurement (not upgradable), Including calculation of volume flow, mass flow	0440 0348
Integrated dew point calculation	0450 0301
Car charging adapter, ready to measure following recharging in car, Battery is recharged while travelling in car	0554 0424
Hose connection set for differential pressure and velocity measurement, 2 silicone hoses à 2.5 m, 1 silicone hose 0.3 m, Ø 4 and 6 mm adapter	0554 0316
Cable, 1.5 m long, connects probe with plug-in head to meas. instrument, PUR coating material	0430 0143

## Accessories

Transport and Protection	Part no.
SoftCase (protects instrument from dirt and impact) made of elastic plastic, with carrier strap and magnetic plate	0516 0301
Transport case (plastic) for measuring instrument, probes, For secure and orderly storage	0516 0300
Aluminium case for measuring instrument, probes (also for 700 mm flue gas probes), Pitot tube and accessories, Contents can be clearly arranged by placing probe in lid	0516 0305
System case for analyser, probes and accessories	0516 0310
Universal system case without sections, can be attached to system case 0516 0310, For easy storage of analyser and additional accessories	0516 0331
PC Software and Accessories	Part no.
Economical software, Windows® software for data management, With convenient analysis and graphics function, online measurement and barcode printout	0554 0310
RS232 cable, Connects instrument to PC (1.8 m) for data transfer	0409 0178
Ordering data/Gas drier	Part no.
Compact gas drier with automatic emptying function, To protect from condensate and for accurate SO <sub>2</sub> measurements	0440 7433
Mains unit to supply power to compact gas drier and testo 300M-I/XL-I, incl. adapter cable	0554 3376
Spare particle filter for compact gas drier (5 off)	0554 3370
Accessories Ordering Data for testo 330 XL-I only	Part no.
Memory extension to 400 data blocks, for saving the readings of up to 400 complete systems in testo 300 XL-I	0440 0122
Attachable printer (securely attached) including 1 roll of thermal paper and batteries, Quickly prints readings on location	0554 0570
SoftCase for attachable printer (protects printer from dirt/impact), Protects from impact and falls	0516 0411
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/Velocity, Hot wire, vane anemometer, Pitot tube; calibration points 5; 10; 15; 20 m/s	0520 0034
DKD calibration certificate/Velocity, Hot wire, vane anemometer, Pitot tube; calibration points 2; 5; 10; 15; 20 m/s	0520 0204

### Recommended Set: testo 300 M-I, The affordable basic set

Flue gas analyser, incl. batteries and calibration protocol; for measuring O <sub>2</sub> , CO <sub>2</sub> , CO (with H <sub>2</sub> compensation), NO (optional), SO <sub>2</sub> (optional), absolute temperature, differential pressure (optional), velocity (optional), mass flow/volume flow (optional), flue gas dew point (optional), efficiency, flue gas loss, excess air	0563 0311
Basic sampling probe, 335 mm long	0600 7431
Power unit 230 V/ 8 V/ 1 A, for instrument (European plug), For mains operation and battery recharging	0554 1084

### Recommended Set: testo 300 M-I, Professional set for fast emission measurement

Flue gas analyser, incl. batteries and calibration protocol; for measuring O <sub>2</sub> , CO <sub>2</sub> , CO (with H <sub>2</sub> compensation), NO (optional), SO <sub>2</sub> (optional), absolute temperature, differential pressure (optional), velocity (optional), mass flow/volume flow (optional), flue gas dew point (optional), efficiency, flue gas loss, excess air	0563 0311
Integrated velocity/differential pressure measurement (not upgradable), Including calculation of volume flow, mass flow	0440 0348
NO measuring cell, Built-in in flue gas analyser	0440 3922
Rechargeable battery set for instrument (4 rechargeables 2.4V/700mAh), Selected for quick recharging in instrument	0554 0196
Power unit 230 V/ 8 V/ 1 A, for instrument (European plug), For mains operation and battery recharging	0554 1084
Basic sampling probe, 335 mm long	0600 7431
Pitot tube, stainless steel, 350 mm long, measures velocity with temperature measurement, 3 x hoses (5 m long) and heat protection plate	0635 2041
Testo printer with cordless IRDA and infrared interface, 1 roll of thermal paper and 4 round cell batteries, For printout of reading on site	0554 0547
Transport case (plastic) for measuring instrument, probes, For secure and orderly storage	0516 0300