

## testo 330-1 LL – Flue gas analysis with increased convenience and reliability



You are looking at the technical edge.



The extended service life of the sensors in testo 330-1 LL by up to 6 years for O<sub>2</sub> and CO greatly reduce follow-on costs for the user. At least one O<sub>2</sub> and one CO sensor change can be dispensed with during typical utilisation of the instrument. In addition, Testo offers a four year warranty on the complete instrument (testo 330-1 LL with O<sub>2</sub> and CO measurement sensors and probe).



**User-friendly operation**  
Robust quick-action probe connection for all gas paths



**Increased safety**  
Qualitative status of functions and wearing parts via instrument diagnosis



**More convenience**  
Easy-to-change rech. batt. and sensors, rech. batt. life > 8 hours, sensor life > 6 years



**Absolutely robust**  
High CO display range up to 30,000 ppm on account of patented dilution (testo 330-2 LL)



## Convenient introductory analyser in the pro class for heating technicians and fitters

### testo 330-1 LL

The major advantage of flue gas analysers lie in their dialog feature: instrument diagnosis provides information about the qualitative status of functions at the touch of a button; for example, the level in a condensate trap but also wearing parts such as the condition of the gas sensors. Maintenance intervals are displayed allowing you to plan better. The times when an analyser let the user down all of a sudden are a thing of the past.

Modular probes such as  $\Delta T$ ,  $\Delta P$ , flue gas are recognised automatically by the analyser so that measurement results appear immediately in the display.

The probes have a probe quick-release device with which all of the gas paths are connected without mix-ups. The single cable is rigid, indestructible, saves space and creates order. The particle filter is located directly in the probe's handle. Probe shafts with different lengths and diameters can be easily attached to the probe handle.

- Instrument diagnosis
- $\Delta T$  measurement, flow/return
- Ambient CO measurement
- Ambient CO<sub>2</sub> measurement
- Detects gas leaks using gas leak detection probe
- $\Delta P$  measurement for gas pressure
- Gas/oil throughput
- 200 measurement data sets, system numbers included
- IRDA interface for data transfer to PDA/Notebook
- TÜV By RgG 250 acc. to 1. BlmSchV
- Official test acc. to EN 50379-2 for O<sub>2</sub>, °C, hPa
- Official test acc. to EN 50379-3 for CO
- USB interface for data transfer to PC
- Data management with easyheat software (PC) and easyheat.mobile (Pocket PC)



Flue gas measurement in a burner



| Technical data   |   |
|--|---|
| Temperature  | -40 to +1200 °C   |
| Draught measurement  | -9.99 to +40 hPa  |
| Pressure measurement   | 0 to 200 hPa  |
| O <sub>2</sub> measurement   | 0 to 21 Vol. %  |
| CO measurement (without H <sub>2</sub> compensation)                       | 0 to 4000 ppm   |
| Efficiency measurement (Eta)   | 0 to 120%   |
| Flue gas loss  | 0 to 99.9%  |
| CO <sub>2</sub> measurement  | Display range 0 to CO <sub>2</sub> max  |
| Option: NO <sub>low</sub> measurement                                      | 0 to 300 ppm  |
| Option: NO measurement   | 0 to 3000 ppm   |
| Ambient CO measurement (with CO probe)                                     | 0 to 500 ppm  |
| Gas leak measurement for combustible gases (with gas leak detection probe) | Display range 0 to 10,000 ppm<br>CH <sub>4</sub> / C <sub>2</sub> H <sub>6</sub>  |
| Ambient CO <sub>2</sub> measurement (with ambient CO <sub>2</sub> probe)   | 0 to 1 Vol. %<br>0 to 10000 ppm   |
| 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   | Rech. batt. block 3.7 V / 2.2 Ah<br>Mains unit 6 V / 1.2 A  |
| Warranty   | Instrument/probe/gas sensors (O <sub>2</sub> , CO) 4 years<br>NO, NO <sub>low</sub> sensor 2 years<br>Thermocouple and rech. battery 1 year |

### testo 330-1 LL

testo 330-1 LL flue gas analyser with long-life gas sensors, rechargeable battery and calibration protocol included

Part no. 0632 3304



**4 Year Warranty on Instrument and Probe (testo 330-1 LL)**

### The new long-life set for heating fitters and technicians

testo 330-1 LL flue gas analyser with rech. battery and calibration protocol

Mains unit 100-240 V for mains operation or charging the battery in the instrument

Modular flue gas probe, immersion depth: 300 mm, Ø 8 mm

Combustion air temperature probe, immersion depth: 190 mm

Hose connection set for separate gas pressure measurement

IRDA printer

Flexible probe shaft, 330 mm long, Ø 10 mm, Tmax 180 °C

Basic system case for instrument, probes and accessories

Part no. 0563 3324 70

See pages 14 + 15 for Accessories Ordering Data

## The special long-life version for customer service and maintenance technicians

### testo 330-2 LL

The flue gas analyser is a reliable companion regardless of whether it is for breakdowns or emergencies, monitoring legal limits or used during everyday maintenance. It supports a fast switch between measurement and maintenance. It can remain positioned in the flue during draught and flue gas zeroing. For applications under extreme conditions, such as badly polluted furnaces, Testo's patented technology guarantees reliable display of a CO value up to 30,000 ppm.

- Instrument diagnosis
- Automatic instrument leak-proofness test
- $\Delta T$  measurement, flow/return
- Ambient CO measurement
- Ambient CO<sub>2</sub> measurement
- Detects leaks with gas leak detection probe
- $\Delta P$  measurement for gas pressure
- Gas/oil throughput
- 400 measurement data sets incl. site address and system no.

- IRDA interface for data transfer to Pocket PC/notebook
- USB interface for data transfer to PC
- Interface to automatic furnaces
- TÜV By RgG 251 acc. to 1. BlmSchV
- Official test acc. to EN 50379-2 for O<sub>2</sub>, °C, hPa und CO
- Draught zeroing without probe removal. The probe can remain in the flue during zeroing
- Zeroes flue gas sensors without probe removal



#### testo 330-2 LL

testo 330-2 LL flue gas analyser with long-life gas sensors and built-in draught and gas zeroing, rech. batt. and calibration protocol included

Part no. 0632 3305

#### Technical data

|  |   |
|--|---|
| Temperature  | -40 to +1200 °C   |
| Draught measurement  | -9.99 to +40 hPa  |
| Pressure measurement   | 0 to 200 hPa  |
| O <sub>2</sub> measurement   | 0 to 21 Vol. %  |
| CO measurement (H <sub>2</sub> compensated)                                | 0 to 8000 ppm<br>from 8000 ppm display range 8000 to 30000 ppm (automatic dilution) |
| Efficiency measurement (Eta)   | 0 to 120%   |
| Flue gas loss  | 0 to 99.9%  |
| CO <sub>2</sub> measurement  | Display range 0 to CO <sub>2</sub> max  |
| Option: NO <sub>low</sub> measurement                                      | 0 to 300 ppm  |
| Option: NO measurement   | 0 to 3000 ppm   |
| Ambient CO measurement (with CO probe)                                     | 0 to 500 ppm  |
| Gas leak measurement for combustible gases (with gas leak detection probe) | Display range 0 to 10,000 ppm<br>CH <sub>4</sub> / C <sub>2</sub> H <sub>6</sub>    |
| Ambient CO <sub>2</sub> measurement (with ambient CO <sub>2</sub> probe)   | 0 to 1 Vol. %<br>0 to 10000 ppm   |

#### General technical data

|               |   |
|---------------|---|
| Memory        | 400 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  | Rech. block 3.7 V / 2.2 Ah<br>Mains unit 6 V / 1.2 A  |
| Warranty      | Instrument/probe/gas sensors (O <sub>2</sub> , CO) 4 years<br>NO, NO <sub>low</sub> sensor 2 years<br>Thermocouple and battery 1 year |

Now: 4 year guarantee on instrument and probe

More robust, longer living, faster and safer thanks to extended lifetime



Fast monitoring of flue gas values in heating systems

### The new long-life set for customer service and maintenance technicians

testo 330-2 LL flue gas analyser

Mains unit 100-240 V for mains operation or charging battery in instrument

Modular flue gas probe, immersion depth: 300 mm, Ø 8 mm

Combustion air temperature probe, immersion depth: 190 mm

Hose connection set for separate gas pressure measurement

IRDA printer

Flexible probe shaft, 330 mm long, Ø 10 mm, Tmax 180 °C

Basic system case for instrument, probes and accessories

Part no. 0563 3325 70

### The new long-life set for heating inspectors

testo 330-2 LL flue gas analyser with rechargeable battery and calibration protocol

Mains unit 100-240 V for mains operation or recharging battery in instrument

Modular flue gas probe, immersion depth: 300 mm, ø 8 mm

Combustion air temperature probe, immersion depth: 190 mm

Hose connection set for separate gas pressure measurement

Flexible probe shaft, 330 mm long

Dual-wall clearance probe

Basic system case for instrument, probes and accessories

Part no. 0563 3325 71

See page 14+15 for Accessories Ordering Data

## User-friendly, portable data management for flue gas analysis

### The testo easyheat and easyheat.mobile software package

The latest top technology in flue gas analysis: the testo 330 LL product line with extended sensor life not only communicates with PC but with also with your Pocket PC. Various software packages give the customer the option of adapting his testo 330 LL exactly to his communications needs.

Using easyheat PC software, customer data, sites and measurements which have already been taken, are easily managed on your PC at home.

easyheat.mobile Pocket PC software supports wireless communication with Windows Mobile instruments. In this way, wireless acceptance of measurement data to the mobile instrument is possible.

Data from the Pocket PC or directly from the analyser is printed on your IrDA printer.

#### System requirements:

#### easyheat PC software:

Microsoft Windows 98 operating system, ME 2000, from Service Package 3 up, or XP

#### easyheat.mobile Pocket PC software:

Pocket PC with IrDA interface and touchscreen, operating system from Windows Mobile 2003

#### Fast-action IrDA printer:

Please refer to the list of Pocket PCs tested and recommended by Testo at [www.testo.de/downloads/easyheat.mobile](http://www.testo.de/downloads/easyheat.mobile)



### The new testo 330-1 LL communication set

- testo 330-1 LL flue gas analyser with rech. battery and calibration protocol
- Power pack 100-240 V for mains operation or battery recharging in analyser
- Modular flue gas probe, 300 mm immersion depth, ø 8 mm
- Combustion air temperature probe, 190 mm long
- Hose connection set for separate gas pressure measurement
- Fast-action IrDA printer and rechargeable battery
- Full version: easyheat and easyheat.mobile
- USB cable connecting analyser to PC
- Basic system case for analyser, probes and accessories

Part no. 0563 3324 75

### The new testo 330-2 LL communication set

- testo 330-2 LL flue gas analyser with rech. battery and calibration protocol
- Power pack 100-240 V for mains operation or battery recharging in analyser
- Modular flue gas probe, 300 mm immersion depth, ø 8 mm
- Combustion air temperature probe, 190 mm long
- Hose connection set for separate gas pressure measurement
- Fast-action IrDA printer and rechargeable battery
- Full version: easyheat and easyheat.mobile
- USB cable connecting analyser to PC
- Basic system case for analyser, probes and accessories







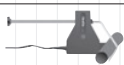

Part no. 0563 3325 75

| Software   | Part no.  |
|--|-----------|
| Demo version easyheat and easyheat.mobile. Demo version of PC and Pocket PC software, 30 day test version  | 0554 1212 |
| easyheat PC analysis software, shows measurement in form of diagrams, tables and manages customer data. Please order USB cable 0449 0047 separately. | 0554 3332 |
| Update: easyheat.mobile. Software for Pocket PC for mobile applications. Only for customers who already have easyheat PC software in use.            | 0554 1211 |
| Full version easyheat and easyheat.mobile. Software package for PC and Pocket PC. Please order USB cable 0449 0047 separately.                       | 0554 1210 |
| Accessories Ordering data  | Part no.  |
| USB connection cable, instrument to PC   | 0449 0047 |
| Testo IrDA printer with bidirectional IrDA interface and rech. battery, for communication between 330 LL and Pocket PC                               | 0554 0548 |
| Spare thermal paper for printer (6 rolls), permanent ink   | 0554 0568 |

## Accessories for testo 330-1/-2 LL

| Instruments / Options / Upgrades   | Part no.        |
|--|-----------------|
| testo 330-1 LL flue gas analyser with long-life gas sensors, rechargeable battery and calibration protocol included                                  | 0632 3304       |
| testo 330-2 LL flue gas analyser with long-life gas sensors and built-in draught and gas zeroing, rech. batt. and calibration protocol included      | 0632 3305       |
| Option: Fine draught measurement, Resolution 0.1 Pa, measurement range to 100 Pa (instead of the standard draught measurement)                       | 0440 3921       |
| Option: NO sensor, meas. range 0 to 3000 ppm, 1 ppm resolution   | 0440 3922       |
| Retrofit: NO sensor, meas. range 0 to 3000 ppm, 1 ppm resolution   | 0554 3922       |
| Option: NOlow sensor, meas. range 0 to 300 ppm, 0.1 ppm resolution   | 0440 3931       |
| Retrofit: NOlow sensor, meas. range 0 to 300 ppm, 0.1 ppm resolution   | 0554 3931       |
| <b>Upgrade testo 330-1 to testo 330-1 LL (only possible by Testo service)</b>  | <b>Part no.</b> |
| Upgrade testo 330-1 to testo 330-1 LL consisting of:   |                 |
| Option code upgrade testo 330-1 to testo 330-1 LL  | 0450 1100       |
| Retrofit: O2 LL sensor   | 0554 3938       |
| Retrofit: CO LL sensor   | 0554 3936       |
| <b>Upgrade testo 330-2 to testo 330-2 LL (only possible by Testo service!)</b>   | <b>Part no.</b> |
| Upgrade testo 330-2 to testo 330-2 LL consisting of:   |                 |
| Option code upgrade testo 330-1 to testo 330-1 LL  | 0450 1100       |
| Retrofit: O2 LL sensor   | 0554 3938       |
| Retrofit: CO LL sensor   | 0554 3937       |
| <b>Accessories</b>   | <b>Part no.</b> |
| 100-240 V mains unit, for mains operation or batt. recharging in analyser  | 0554 1086       |
| Spare rech. batt. w/ charging station  | 0554 1087       |
| Testo printer with wireless IRDA and infrared interface, 1 roll of thermal paper and 4 AA batteries  | 0554 0547       |
| Testo IrDA printer with bidirectional IrDA interface and rech. battery, for communication between 330 LL and Pocket PC                               | 0554 0548       |
| Spare thermal paper for printer (6 rolls), permanent ink   | 0554 0568       |
| Barcode reader, to read in customer number on site   | 0554 0461       |
| 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       |
| ISO calibration certificate/flue gas   | 0520 0003       |
| Instrument cleaner (100 ml), for hassle-free and fast removal of dirt from housing, display screen, keypad, probe handle and probe cable             | 0554 1207       |
| Readout adapter for automatic furnaces   | 0554 1206       |
| <b>Software</b>  | <b>Part no.</b> |
| Demo version easyheat and easyheat.mobile.   | 0554 1212       |
| easyheat PC analysis software, shows measurement in form of diagrams, tables and manages customer data. Please order USB cable 0449 0047 separately. | 0554 3332       |
| Update: easyheat.mobile. Software for Pocket PC for mobile applications.   | 0554 1211       |
| Full version easyheat and easyheat.mobile. Software package for PC and Pocket PC. Please order USB cable 0449 0047 separately.                       | 0554 1210       |
| USB connection cable, instrument to PC   | 0449 0047       |
| <b>Cases</b>   | <b>Part no.</b> |
| Basic system case for analyzer, probes and accessories   | 0516 3330       |
| Basic system case with two levels for analyser, probes and additional accessories  | 0516 3331       |
| Product system case with small plastic boxes, without contents, attachable to basic system case  | 0516 0328       |
| Tools system case with tools section, without contents, attachable to basic system case  | 0516 0329       |
| Versatile system case without sections, attachable to basic system case  | 0516 0331       |
| Measurement case (leather) with drawers for instruments and accessories  | 0516 0303       |

## Accessories for testo 330-1/-2 LL

| Spare gas sensors   |   | Part no.  |  |                 |  |
|---|---|---|--|-----------------|--|
| O <sub>2</sub> sensor for testo 330-1 LL/-2 LL  |   | 0390 0061   |  |                 |  |
| NO <sub>low</sub> sensor 0 to 300 ppm for testo 330-1 LL/-2 LL  |   | 0390 0094   |  |                 |  |
| NO sensor 0-3000 ppm for testo 330-1 LL/-2 LL   |   | 0390 0074   |  |                 |  |
| CO sensor (without H <sub>2</sub> compensation) for testo 330-1 LL  |   | 0390 0110   |  |                 |  |
| CO sensor (H <sub>2</sub> compensated) for testo 330-2 LL   |   | 0390 0090   |  |                 |  |
| Retrofit: NO <sub>low</sub> sensor, meas. range 0 to 300 ppm, 0.1 ppm resolution for testo 330-1 LL/-2 LL                           |   | 0554 3931   |  |                 |  |
| Probes  |   | Part no.  |  |                 |  |
| Flue gas probe, 180 mm long, Ø 8 mm, Tmax 500 °C, TÜV approval  |  <p>Modular flue gas probes, available in 2 lengths, incl. probe stop for positioning, NiCr-Ni thermocouple, 2.2 m hose and particle filter</p> | 0600 9760   |  |                 |  |
| Flue gas probe, 300 mm long, Ø 8 mm, Tmax 500 °C, TÜV approval  |   | 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   |  |                 |  |
| Flexible flue gas probe, 330 mm long, Tmax. 180 °C, short-term 200 °C, bending radius max. 90° for measuring at inaccessible points |   | 0600 9764   |  |                 |  |
| Probe accessories   |   | Part no.  |  |                 |  |
| 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, 335 mm long, with probe stop, Ø 8 mm, Tmax 1000 °C   |   | 0554 8764   |  |                 |  |
| Probe shaft, 700 mm long, with probe stop, Ø 8 mm, Tmax 1000 °C   |   | 0554 8765   |  |                 |  |
| Flexible probe shaft, 330 mm long, Ø 10 mm, Tmax 180 °C   |   | 0554 9764   |  |                 |  |
| Multi-hole probe shaft, 180 mm long, Ø 8 mm, for mean CO calculation  |   | 0554 5763   |  |                 |  |
| Multi-hole probe shaft, 300 mm long, Ø 8 mm, for mean CO calculation  |   | 0554 5762   |  |                 |  |
| Hose extension, 2.8 m, extension cable for probe and analyser   |   | 0554 1202   |  |                 |  |
| 6 mm probe stop, PTFE, with spring clamp and handle, Tmax 200 °C  |   | 0554 3327   |  |                 |  |
| 8 mm probe stop, PTFE, with spring clamp and handle, Tmax 200 °C  |   | 0554 3328   |  |                 |  |
| 6 mm, probe stop, steel, with spring clamp and handle, Tmax 500 °C  |   | 0554 3329   |  |                 |  |
| 8 mm probe stop, steel, with spring clamp and handle, Tmax 500 °C   |   | 0554 3330   |  |                 |  |
| Additional probes   |   | Meas. range   | Accuracy   | Part no.        |  |
| Dual wall clearance probe for O <sub>2</sub> supply air measurement   |    |   |  | 0632 1260       |  |
| Gas leak probe  |    | 0 to +10000 ppm CH <sub>4</sub> / C <sub>3</sub> H <sub>8</sub>   |  | 0632 3330       |  |
| Ambient CO probe  |    | 0 to +500 ppm CO  | ±5% of mv (+100.1 to +500 ppm CO)<br>±5 ppm CO (0 to +100 ppm CO)  | 0632 3331       |  |
| Ambient CO <sub>2</sub> probe   |    | 0 to +1 Vol. % CO <sub>2</sub><br>0 to +10000 ppm CO <sub>2</sub> | ±(50 ppm CO <sub>2</sub> ±2% of mv)(0 to +5000 ppm CO <sub>2</sub> )<br>±(100 ppm CO <sub>2</sub> ±3% of mv)(+5001 to +10000 ppm CO <sub>2</sub> ) | 0632 1240       |  |
| Connection cable  |   |   |  | 0430 0143       |  |
| Combustion air temperature probe  |   | Part no.  |  |                 |  |
| 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   |   | Meas. range   | Accuracy   | t <sub>99</sub> | Part no.   |
| Mini ambient air probe  |   |   |  |                 | 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             | 0600 4593<br>Conn.: Fixed cable  |
| Quick-action surface probe  | <br>150 mm<br>Ø 10 mm  | -200 to +300 °C   | Class 2  | 3 s             | 0604 0194<br>Conn.: Plug-in head, connection cable 0430 0143 or 0430 0145 required |
| Connection cable  |   |   |  |                 | 0430 0143  |

## **CONTACT INFORMATION**

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