testo

Measuring Instruments For Indoor Air Quality, Light And Sound
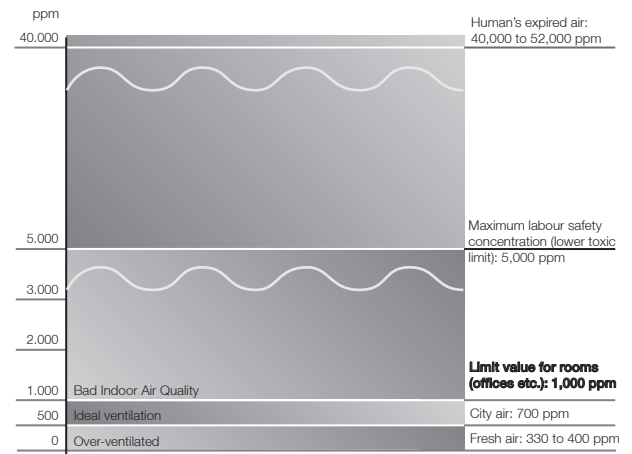
CO_2 measurement engineering

Why CO_2 measurement?

CO_2 concentration is used as an indicator when assessing indoor air quality. If the CO_2 concentration in indoor air is too high (limit value: 1000 ppm), the air feels "stuffy and stale".

Bad air quality in rooms (e.g. offices) can lead to tiredness, lack of concentration and illness (Sick Building Syndrome SBS) and is caused, in many cases, by insufficient ventilation.

The CO_2 concentration in demand controlled ventilating (DCV) systems is used to regulate the supply of fresh air. Stationary CO_2 transmitters are used and should be checked on a regular basis using hand-held measuring instruments.

CO_2 concentrations

ppm		
40.000		Human's expired air: 40,000 to 52,000 ppm
5.000		Maximum labour safety concentration (lower toxic limit): 5,000 ppm
3.000		
2.000		
1.000	Bad Indoor Air Quality	Limit value for rooms (offices etc.): 1,000 ppm
500	Ideal ventilation	City air: 700 ppm
0	Over-ventilated	Fresh air: 330 to 400 ppm

The Light Parameter

Approxiamtely 80% of all sensations are experienced by the eye. Light is required for this purpose.
Approximately 25% of human energy is needed for the seeing process.

Spectral response of the eye
Light is made up of very high electromagnetic oscillation between 380 and 770 nm. They are experienced by the eye as light.

Light intensities
Humans are day beings, i.e. we are used to a light intensity such as that which is available during the day. Values lie between approx. 5000 Lux on a dull Winter's day and approx. 100 000 Lux on a sunny Summer's day.

The light intensity of artifical lights is ususally between 100 and 1000 Lux.

Effects
Fatigue on account of too little light occurs more in the organism as a whole than in the eye itself. For this reason, insufficient or bad lighting conditions cannot be identified as the cause of accidents or fatigue.

According to documentation available approx. 30% of all accidents result directly or indirectly from inadequate lighting. In the interest of accident prevention it is imperative that steps are taken to monitor the situation.

Different light intensities are recommended by standards bodies, depending on the task. Light intensities of approx. 100 to 250 Lux are sufficient for simple tasks. A minimum of 1000 Lux is required for precision work.

Light intensity	Light flux:
Unit: Lux (lx) Light intensity is the ratio of the light flux on an area to the area.	Unit: lumen (lm) Light flux is the total radiation power emitted from a light source and photometrically assessed.
Light intensity (lx) = $\dfrac{\text{Light flux (lm)}}{\text{Area (m}^2)}$	$E = \dfrac{\Phi}{A}$

The Sound parameter

Sound waves are fluctuations in air pressure
If they are audible to the human ear we talk about audible sound. The fluctuations in pressure occurring with audible sound are extremely low. At a normal pressure of 1013 mbar even changes in the µPa range can stimulate the human ear. A suitable pressure sensor with the appropriate sensitivity is the microphone.
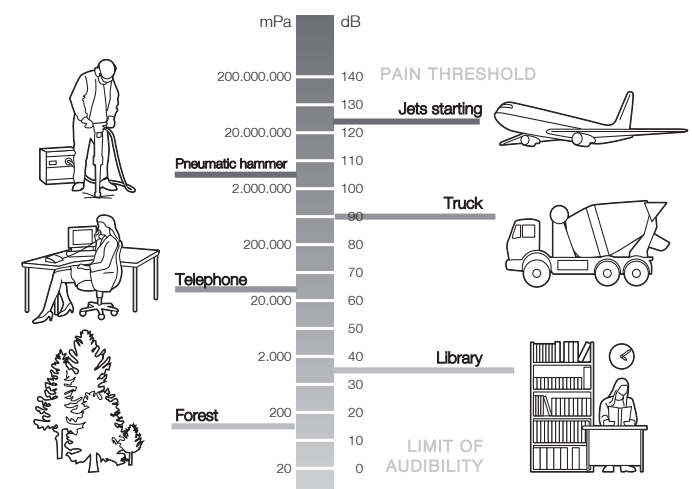
Sound level meters have been designed for measurements in the free field. There is also a free field if the level falls by 6 dB per duplication of the distance from the source. This is the case in most rooms.

Example:
– Office with carpet, curtains and partitions = Free field !
– Cellar with concrete walls, without furniture, highly reverberant = Reverberant field !

Measuring tips
Measuring conditions are ideal if there are absolutely no interfering objects in the sound field. This would be the case, for example, on top of a mountain. Because there are no walls or ceilings on which sound can be reflected, free dispersion is guaranteed (free field). In a closed room there is usually a wall opposite the noise source. This can cause reflections which distort the measured result (reverberant field).

mPa	dB	
	140	PAIN THRESHOLD
200.000.000	130	Jets starting
20.000.000	120	
	110	
Pneumatic hammer	100	
2.000.000	90	Truck
200.000	80	
	70	
Telephone	60	
20.000	50	
2.000	40	Library
	30	
Forest 200	20	
	10	LIMIT OF
20	0	AUDIBILITY

Contents

![testo logo]

testo 316-1 — Detector for leaks in natural gas pipes

The testo 316-1 gas leak detector quickly detects even the smallest leaks.

- Flexible measurement probe for hard to reach locations
- Optical and audible alarms signal when limits are exceeded
- TopSafe case protects from dirt and impact (optional)
- DVGW approval

testo 316-1, testo 316-1, electronic gas leak detector with flexible measurement probe and battery

Part no.	
0632 0316	

Technical data			
Probe type	Semi-conductor sensor	Battery type	9V block battery
Meas. range	0 to 10,000 ppm CH_4	Battery life	> 5 h
		Dimensions	190 x 57 x 42 mm
		Weight	Approx. 300 g
		Material/Housing	ABS
		Warranty	2 years
		1st alarm limit: from 200 ppm CH4	
		2nd alarm limit: 10,000 ppm CH4	

Accessories	Part no.
TopSafe for testo 316, indestructible protection case incl. stand, protects from dirt and impact	0516 0189
Case for instrument and probes For safe and orderly storage	0516 0182
Transport case (plastic) For transport and secure storage of measuring instrument and accessories	0516 3120
Accessories set (for instrument without TopSafe) includes multi-function clip, carrier loop, probe holder	0554 0550

testo 317-1 — Flue gas spillage detector

The testo 317-1 flue gas spillage detector reliably detects escaping heating gases. The practical instrument immediately gives off a visual and audible alarm. Therefore, it is not necessary to actually see the detector. The bendable probe facilitates applications in confined areas.

- Reliable recognition of escaping flue gases
- Bendable measurement probe for points which are difficult to access
- Audible and visual alarm
- DVGW approved

35 mm   Ø 10 mm

200 mm

teto 317-1, electronic flue gas spillage detector with flexible probe, incl. battery

Part no.	
0632 3170	

Technical data			
Measuring medium	Ambient air	Diameter/Probe pipe tip	Ø 10 mm
Reaction time	2 s		
Battery type	3 AAA micro batteries	Length of probe pipe tip	35 mm
Dimensions	128 x 46 x 18 mm		
Weight	300 g	Length of probe pipe	200 mm
Display	Visual/audible		
Warranty	2 years		

![testo]

testo 317-2 — Gas leak detector

Highly practical gas leak detector for fast checks on gas pipe connections, with visual bar display.

- Shows gas concentration in visual bar display
- Sensor self-test following switch-on
- Audible confirmation of readiness to operate
- Increasing alarm sounds with increasing gas concentration
- Continuous sound if alarm threshold is exceeded
- Battery monitoring with optical display

testo 317-2, Gas leak detector including case with belt clip and hand loop, self-test function and batteries

Part no.	
0632 3172	

Technical data

Meas. range	0 to 20.000 ppm CH_4 0 to 10.000 C_3H_8	Battery type	2 batteries type micro AAA 1.5 V (LR03)
Display	8 segment trend display	Battery life	4 h (LR03)
		Oper. temp.	-5 to +45 °C
Alarm thresholds	10.000 ppm CH_4 5000 C_3H_8	Storage temp.	-20 to +50 °C
Lower response thresholds	100 ppm CH_4 50 C_3H_8	Audible emitter	85 dB(A)
t_{90}	<5 s		
Heat-up time	60 s		

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testo 317-3 — Ambient carbon monoxide warning

The testo 317-3 CO monitor detects the presence of carbon monoxide in the surrounding area and warns the user both visually and audibly about dangerous gas concentrations e.g. when installing and servicing gas heaters.

- 3 year warranty on CO cell
- Visual and audible alarm
- No zero phase, instrument can be used immediately
- Adjustable alarm threshold
- CO zeroing at site

testo 317-3, CO Monitor testo 317-3 incl. leather bag, headphones, hand strap, self-test function, sampler

Part no.	
0632 3173	

Technical data

Meas. range	0 to +1999 ppm	Oper. temp.	-5 to +45°C
Accuracy ±1 digit	±10 ppm (0 to +99 ppm) ±10 % (+100 to +499 ppm) ±20 % (>+500 ppm)	Battery type	2 batteries Type AAA
		Battery life	150 h (with beeper switched off)
		Reaction time	40 s
Resolution	1 ppm	Warranty	2 years on the instrument 3 years on the CO sensor

testo gas detector

Gas detector

According to DVGW leaflet G 465-4, gas detectors are approved for aboveground gas detection up to the "lower explosive limit (LEL)". Testo's gas detector is a multi-range gas detector for the gas types methane, propane and hydrogen. Gas concentrations are measured by the semi-conductor sensor in the ppm range and are shown in the display with a resolution of 1 ppm.

- Audible signals if approaching lower explosion limit
- Continuous tone and warning in display if explosion limit is reached.

Gas detector incl. flexible probe extension, rechargeable battery and mains unit for mains operation and battery recharging

Part no.
0632 0323

Technical data		
Display range	Methane CH_4	1 to 999 ppm, 0.1 to 4.4 vol.%
	Propane C_3H_8	1 to 999 ppm, 0.1 to 1.9 vol.%
	Hydrogen H_2	1 to 999 ppm, 0.1 to 4.0 vol.%
Resolution	1 ppm / 0.1 vol.%	
First reaction	>10 ppm	
Voltage supply	Built-in battery block, NiMH, 1600 mAh	
Ex-Protection	Sensor intrinsically-safe in accordance with DMT test institute	
Battery life	>8 h	

Reaction time	2-3 s
Oper. temp.	–15 to +40 °C
Storage temp.	–25 to +70 °C
Dimensions	190 x 40 x 28 mm
Weight	320 g
Warranty	2 years on instrument, 1 year on sensor

testo 315-2 | CO warning instrument

Use testo 315-2 to check the CO level in ambient air. Even low concentrations of the highly poisonous gas are detected. In this way, you can judge whether the burner flue gases are being fully drawn off.

- Reliable warning of CO poisoning
- DVGW approval
- Adjustment of different alarm limits
- Printout with date/time and recommended value (alarm limit)
- With calibration protocol
- TopSafe, protection case for tough applications
- Quick and practical documentation of data on location, printout with date/time and recommended value (alarm limit)

testo 315-2 , CO warning instrument, with battery and calibration protocol

Part no.	
0632 0317	

Accessories	Part no.
Transport and Protection	
TopSafe (protection case), with bench stand Protects instrument from dirt and impact	0516 0443
Magnetic bench stand suitable for TopSafe 0516 0443 For positioning on boilers, for example	0554 0407
Multi-function clip (for instrument with TopSafe) consisting of multi-function clip and magnetic holder	0554 0398
Case For secure storage of measuring instrument	0516 0191
Transport case (plastic) For transport and secure storage of measuring instrument and accessories	0516 3120
Printer and Accessories	
Testo printer with cordless IRDA and infrared interface, 1 roll of thermal paper and 4 round cell batteries	0554 0547
Recharger for printer (with 4 standard rech. batteries) Rechargeable batteries are recharged externally	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	
9V rech. battery for instrument Instead of battery	0515 0025
Recharger for 9V rechargeable battery For external recharging of 0515 0025 battery	0554 0025
CO flue gas probe to measure CO in flue gas, with exchangeable NOx filter and pressure reducer	0554 3154
Spare particle filter (10 off) For CO flue gas probe	0554 0040
Filter granulates (refill set) to renew NOX filter in CO flue gas probe	0554 3167
Calibration Certificates	
ISO calibration certificate/Flue gas Calibration points 2.5% O2; 100 and 1000 ppm CO; 800 ppm NO; 80 ppm NO2; 1000 ppm SO2	0520 0003
ISO calibration certificate/CO CO probes; calibration points 0; 80 ppm	0520 0039

Recommended set	
testo 315-2, CO warning set	
- CO warning instrument, with battery and calibration protocol (Part no. 0632 0317)	
- TopSafe (protection case), with bench stand (Part no. 0516 0443)	
- Case (Part no. 0516 0191)	

Technical data			
Meas. range	0 to +2000 ppm CO	Oper. temp.	+5... +45 °C
Accuracy ±1 digit	±10 ppm CO (0 to +100 ppm CO) ±10% of mv (+100 to +2000 ppm CO)	Battery type	9V block battery
		Dimensions	215 x 68 x 47 mm
		Weight	400 g
		Display	LCD, 2 lines
		Material/Housing	ABS
Resolution	1 ppm CO	Warranty	2 years
Alarm limits	50/100/500 ppm		
Zero point adjustment	Automatically when switched on		

testo 315-1

Versatile CO measurement – For safety and service

testo 315-1 provides you with all the measurement functions needed to service gas heating systems. While measuring draught, pressure difference, temperature or ionisation current, the instrument can also simultaneously show the CO level in ambient air. In this way, you always have the system´s safety under your watchful eye.

- Reliable CO warning
- Three alarm thresholds are freely adjustable
- Audible and visual alarm
- Automatic zero point adjustment
- Two temperature sockets to compare flow and return temperature
- Compensation of deviations in readings due to temperature
- TopSafe case protects from dirt, water and impact (optional)

testo 315-1 , CO warning and servicing instrument for gas heating systems, with battery and calibration protocol

Part no.	
0632 0315	

Recommended set

The testo 315-1 service set with printout on-site

- CO warning and servicing instrument for gas heating systems, with battery and calibration protocol (Part no. 0632 0315)
- Pressure set with flue draught probe (Part no. 0554 3150)
- Cables for measuring ionisation current (2 off) incl. clamp testing tips, cable 1 m long (Part no. 0554 0551)
- Pipe wrap probe with Velcro strip, for temperature measurement on pipes with diameter up to max. 120 mm, Tmax +120°C (Part no. 0628 0020)
- Pipe wrap probe with Velcro strip, for temperature measurement on pipes with diameter up to max. 120 mm, Tmax +120°C (Part no. 0628 0020)
- Testo printer with cordless IRDA and infrared interface, 1 roll of thermal paper and 4 round cell batteries (Part no. 0554 0547)
- TopSafe (protection case), with bench stand (Part no. 0516 0443)
- Transport case (plastic) (Part no. 0516 3120)

More probes	Illustration	Meas. range	Accuracy	t_{99}	Part no.
CO flue gas probe to measure CO in flue gas, with exchangeable NOx filter and pressure reducer					0554 3154
Pressure set with flue draught probe	215 mm Ø 5 mm				0554 3150
Cables for measuring ionisation current (2 off) incl. clamp testing tips, cable 1 m long					0554 0551
Pipe wrap probe with Velcro strip, for temperature measurement on pipes with diameter up to max. 120 mm, Tmax +120°C	Fixed cable 20 mm 395 mm	-50 to +120 °C	Class 1	90 s	0628 0020

Accessories	Part no.
Transport and Protection	
TopSafe (protection case), with bench stand Protects instrument from dirt and impact	0516 0443
Magnetic bench stand suitable for TopSafe 0516 0443 For positioning on boilers, for example	0554 0407
Multi-function clip (for instrument with TopSafe) consisting of multi-function clip and magnetic holder	0554 0398
Case For secure storage of measuring instrument	0516 0191
Transport case (plastic) For transport and secure storage of measuring instrument and accessories	0516 3120
Printer and Accessories	
Testo printer with cordless IRDA and infrared interface, 1 roll of thermal paper and 4 round cell batteries	0554 0547
Recharger for printer (with 4 standard rech. batteries) Rechargeable batteries are recharged externally	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	
9V rech. battery for instrument Instead of battery	0515 0025
Recharger for 9V rechargeable battery For external recharging of 0515 0025 battery	0554 0025
Spare particle filter (10 off) For CO flue gas probe	0554 0040
Filter granulates (refill set) to renew NOX filter in CO flue gas probe	0554 3167
Calibration Certificates	
ISO calibration certificate/Flue gas Calibration points 2.5% O2; 100 and 1000 ppm CO; 800 ppm NO; 80 ppm NO2; 1000 ppm SO2	0520 0003
ISO calibration certificate/CO CO probes; calibration points 0; 80 ppm	0520 0039

Technical data			
Meas. range	0 to +2000 ppm CO	-200 to +200 hPa	-40 to +40 hPa
Accuracy ±1 digit	±10% of mv (+100 to +2000 ppm CO) ±10 ppm CO (0 to +100 ppm CO)	±0.5 hPa (-49.9 to +49.9 hPa) ±1.5 hPa (-200 to -50 hPa) ±1.5 hPa (+50 to +200 hPa)	±1.5% of mv (-40 to -3 hPa) ±1.5% of mv (+3 to +40 hPa) ±0.03 hPa (-2.99 to +2.99 hPa)
Resolution	1 ppm CO (0 to +2000 ppm CO)	0.1 hPa (-200 to +200 hPa)	0.01 hPa (-40 to +40 hPa)

Meas. range	-40 to +600 °C	-100 to +100 µA	
Accuracy ±1 digit	±0.5% of mv (+100 to +600 °C) ±0.5 °C (0 to +99 °C)	±3 µA (-100 to +100 µA)	
Resolution	0.1 °C (-40 to +600 °C)	1 µA (-100 to +100 µA)	

Oper. temp.	+5 to +45 °C
Storage temp.	-20 to +50 °C
Display	LCD, 2 lines
Battery type	9V block battery
Battery life	16 h
Dimensions	215 x 68 x 47 mm
Weight	400 g
Material/Housing	ABS
Warranty	2 years

testo

testo 535 — CO2 instrument with probe for HVAC fitters and engineers

testo 535, the efficient CO2 measuring instrument for measuring indoor air quality. Bad air quality in rooms can lead to tiredness, lack of concentration and illness (Sick Building Syndrome) due to high CO2 concentration (greater than 1000 ppm)

You can print the data on location with date and time on the Testo printer. The TopSafe case protects the instrument from dust, dirt and impact (optional).

- Long-term monitoring based on maximum and mean calculation
- Long-term stable 2 channel infrared sensor
- Highly accurate, highly efficient
- Repeated calibration is unnecessary

testo 535, CO2 measuring instrument with permanently attached probe, batteries and calibration protocol

Part no.	
0560 5350	

Accessories	Part no.
Transport and Protection	
TopSafe (protection case) with bench stand Protects instrument from impact and dirt	0516 0183
Transport case (plastic) for instrument and accessories For safe and orderly storage	0516 0184
Case For secure storage of measuring instrument	0516 0191
Printer and Accessories	
Testo printer with cordless IRDA and infrared interface, 1 roll of thermal paper and 4 round cell batteries	0554 0547
Recharger for printer (with 4 standard rech. batteries) Rechargeable batteries are recharged externally	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	
Accessories set (for instrument without TopSafe) includes multi-function clip, carrier loop, probe holder	0554 0550
Accessories set (for instrument with TopSafe) includes multi-function clip and probe holder	0554 0552
9V rech. battery for instrument Instead of battery	0515 0025
Recharger for 9V rechargeable battery For external recharging of 0515 0025 battery	0554 0025
Plug-in mains unit For mains operation and recharging battery in instrument	0554 0088
Calibration Certificates	
ISO calibration certificate/CO2 CO2 probes; calibration points 0; 1000; 5000 ppm	0520 0033

Technical data			
Probe type	2 channel infrared sensor	Measuring medium	Air
Meas. range	0 to +9999 ppm CO_2	Oper. temp.	0 to +50 °C
		Storage temp.	-20 to +70 °C
Accuracy ±1 digit	±(50 ppm CO_2 ±2% of mv) (0 to +5000 ppm CO_2) ±(100 ppm CO_2 ±3% of mv) (+5001 to +9999 ppm CO_2)	Battery type	9V block battery
		Battery life	6 h
		Dimensions	190 x 57 x 42 mm
		Weight	300 g
Resolution	1 ppm CO_2	Display	LCD, 2 lines
		Material/Housing	ABS
		Warranty	2 years
		Auto Off	10 min

testo 545 — Light meter with location management

In order to have good quality light, luminous intensity in the workplace, hospitals, offices or schools has to fulfill specific minimum guidelines. This can be checked using testo 545.

A location list with individual luminous intensity values can be saved and later connected to form a curve using software. This "light profile" provides information on the uniformity of the lighting.

- Multi-point or timed mean calculation
- Stores up to 99 file locations
- Logger function (3000 readings)
- Quick documentation on site on the Testo printer

testo 545, light meter, incl. probe, battery and calibration protocol

Part no.
0560 0545

Accessories	Part no.
Transport and Protection	
TopSafe (indestructible protection case) incl. bench stand and belt clip IP 65, protects instrument from water, dust, impact, scratches, chemicals	0516 0441
Transport case (plastic) for measuring instrument, probes and accessories Now bigger for safe and orderly storage	0516 0445
Case For secure storage of measuring instrument	0516 0191
Printer and Accessories	
Testo printer with cordless IRDA and infrared interface, 1 roll of thermal paper and 4 round cell batteries	0554 0547
Recharger for printer (with 4 standard rech. batteries) Rechargeable batteries are recharged externally	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
Software and Accessories	
ComSoft 3 - Professional with data management Incl. database, analysis and graphics function, data analysis, trend curve	0554 0830
RS232 cable Connects instrument to PC (1.8 m) for data transfer	0409 0178
Ethernet adapter, RS 232 - Ethernet incl. software driver, mains unit Facilitates data communication in network	0554 1711
Electrical isolation for RS232 (connects measuring instrument to PC)	0554 0006
Calibration Certificates	
ISO calibration certificate/Light Lux probes; calibration points 500; 1000; 2000 Lux	0520 0010

Recommended set
testo 545, Comfort Set incl. printer
- testo 545, light meter, incl. probe, battery and calibration protocol (Part no. 0560 0545)
- TopSafe (indestructible protection case) incl. bench stand and belt clip (Part no. 0516 0441)
- Testo printer with cordless IRDA and infrared interface, 1 roll of thermal paper and 4 round cell batteries (Part no. 0554 0547)
- Transport case (plastic) for measuring instrument, probes and accessories (Part no. 0516 0445)

Technical data			
Meas. range	0 to +100000 Lux	Display	LCD, 4 lines
		PC	RS232 interface
Accuracy ±1 digit	Accuracy to DIN 5032, Part 6: f1 = 8% = V (Lambda) adaptation f2 = 5% = cos like rating	Conn.	Fixed cable, coiled
		Memory	3000
		Oper. temp.	0 to +50 °C
		Storage temp.	-20 to +70 °C
		Battery type	9V block battery
		Battery life	50 h
Resolution	1 Lux (0 to +32000 Lux) 10 Lux (0 to +100000 Lux)	Dimensions	220 x 68 x 50 mm
		Weight	500 g
		Material/Housing	ABS
		Warranty	2 years

testo

testo 815 / testo 816 — Sound level measurement – To DIN/IEC 60651, Class 2

The ideal instrument for daily use. Whether it is for air conditioning or heating, disco noise, machine noise or noise in combustion systems, testo 815 is the ideal partner.

Additional benefits of testo 816:

When compared to testo 815, the larger model has additional features which make it ideal for assessors, workplace measurements and for measuring industry and environmental noise.

Common features:
- Accuracy Class 2 to IEC 60651
- Easy to adjust (adjustment screwdriver included)
- Frequency weighting in accordance with characteristic curve A and C
- Maximum and minimum value memory
- Built-in tripod knuckle screw (1/4 inche)
- High accuracy (Class 2)
- Switchable time weighting Fast/Slow

Additional benefits of testo 816:
- Automatic range switchover
- Backlit display
- Mains unit connection
- Bar graph display
- AC output for connecting recorders and amplifiers
- DC output with 10 mV/dB for connecting recorders or dataloggers

testo 815

testo 816

testo 815
testo 815, Sound level meter, accuracy class 2, incl. microphone, wind protection cap and battery

Part no.	
0563 8155	

testo 816
testo 816, Sound level meter, accuracy class 2, incl. microphone, wind protection cap, battery, stereo jack 3.5 mm, in a practical measurement case

Part no.	
0563 8165	

Accessories	Part no.
Accessories	
Calibrator, for regular calibration of testo 815, testo 816	0554 0452
Power unit 230 V/ 8 V/ 1 A, for instrument (European plug) For mains operation and battery recharging	0554 1084
Calibration Certificates	
ISO calibration cert./Sound pressure Calibration points 94 dB(A); 104 dB(A); 114 dB(A) at different frequencies	0520 0111

Technical data		
	testo 815	**testo 816**
Meas. range	+32 to +130 dB	+30 to +130 dB
Accuracy ±1 digit	Class 2 ±1.0 dB	Class 2 ±1.0 dB
Resolution	0.1 dB	0.1 dB

Oper. temp.	0 to +40 °C	0 to +40 °C
Storage temp.	-10 to +60 °C	-10 to +60 °C
Battery type	9V block battery	9V block battery
Battery life	70 h	50 h
Weight	195 g	315 g
Dimensions	255 x 55 x 43 mm	309 x 68 x 50 mm
Warranty	2 years	2 years

Section meas. ranges: 30 to 80 dB; 50 to 100 dB; 80 to 130 dB
Time weighting: FAST 125 ms setting / SLOW 1 s setting
Pressure dependency: -0.0016 dB/hPa

Technical data	
	Sound level calibrator
Battery type	9V block battery
Battery life	40 h
Warranty	2 years
Accuracy	±0.5 dB in accordance with Class 2 to IEC 60942

Sound pressure level: 94 dB(A)/104 dB(A), adjustable
Frequency: 1000 Hz
Distortion factor: less than 3%

Also suitable for 1/2 and 1 inch microphones by other manufacturers

testo 318-2 S / testo 318-1 S | Fiberscopes – Versatile tools for fast diagnosis

The testo 318-1 S and 318-2 S fiberscopes, with 914 mm and 457 mm long probes, for fast and easy diagnosis of numerous maintenance and repair problems. Visual inspections can be easily and quickly made on hard-to-access points without the need for complicated technology or mounting.

- One hand operation with light switch and focus ring
- Powerful halogen lamp for optimum illumination
- Optional, clip-on 45 degree mirror makes inspection a snap
- Fast, easy check, even for the smallest openings

Ø 6 mm

testo 318-2 S

testo 318-2 S, Fiberscope, 457 mm long probe/Ø 6 mm, halogen lamp and batteries

Part no.	
0632 3182	

testo 318-1 S

testo 318-1 S, Fiberscope, 914 mm long probe/Ø 6 mm, halogen lamp and batteries

Part no.	
0632 3181	

Accessories

Spare halogen lamp Extremely powerful for optimum illumination, even in dark areas	0213 0017
Attachable clip incl. magnet, Ø 6 mm e.g. for fast collection of small, loose metal parts in ducts, shafts etc.	0554 1324
Clip on 45° mirror, Ø 6 mm For visual inspections at hard-to-access points	0554 1325

Technical data

No. of pixels: 6,000
Field of view: 40°
Min. focus distance: 19 mm
Operating and storage temperature: -23 to +49°C
Shaft tip diameter: 6 mm
Max. bending radius: 203 mm
Light source: Halogen lamp (3220 K)
Housing: ABS (black)
Dimensions (handle): 152 x 36 x 62 mm
Weight: Approx. 227 g
Battery type: 2 AA, 1.5V

Warranty:
Excludes damage caused by misuse, accidents or modifications to the product. Warranty is void if the user opens the handle for any reason.
Important information:
- Never use on or near live parts
- Never use on or near live electrical circuits
- Never use in explosive atmospheres
- Not intended for medical or veterinary use
- Avoid over-bending the shaft
- Do not open the handle for any reason
- No user serviceable parts inside
- Do not submerse the handle in any liquid
- Do not immerse the shaft in any solvent for extended periods of time

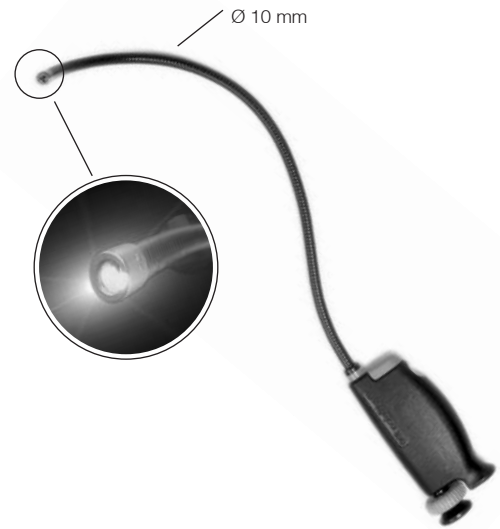| testo 318-1 / testo 318-2 / testo 318-6	Fiberscopes with probe diameter of 10 mm

The remarkable testo 318-1 fiberscope, probe length 914 mm, gives you an inside edge on diagnosing hundreds of maintenance and repair problems. The revolutionary flexible shaft adjusts into almost any position.

The remarkable testo 318-2 fiberscope, probe length 457 mm, gives you an inside edge on diagnosing hundreds of maintenance and repair problems. The revolutionary flexible shaft adjusts into almost any position.

The testo 318-6 fiberscope, with probe length of 1830 mm, for fast and easy diagnosis of numerous maintenance and repair problems. Visual inspections can be easily and quickly made on hard-to-access points without the need for complicated technology or mounting.

- Powerful halogen lamp for optimum illumination
- Can be used for all types of diagnosis
- Fast inspection with clip-on 45° mirror (optional)
- One hand operation with light switch and focus ring

Ø 10 mm

testo 318-1

testo 318-1 Set includes: fiberscope, probe 914 mm long/Ø 10 mm, halogen lamp, batteries

Part no.	
0632 0318	

testo 318-2

testo 318-2 Set includes fiberscope, probe length 457 mm/Ø 10 mm, halogen lamp, batteries

Part no.	
0632 0319	

testo 318-6

Complete 318-6 Set consisting of fiberscope, probe 1830 mm long/Ø 10 mm, halogen lamp, clip-on 45° mirror, clip with magnet, spare lamp, batteries and hard shell case

Part no.	
0563 3186	

Technical data

No. of pixels: 6,000
Field of view: 40°
Min. focus distance: 19 mm
Operating and storage temperature: -23 to +49°C
Shaft tip diameter: 10 mm
Max. bending radius: 203 mm
Light source: Halogen lamp (3220 K)
Housing: ABS (black)
Dimensions (handle): 152 x 36 x 62 mm
Weight: Approx. 227 g
Battery type: 2 AA 1.5 V

Warranty:
Excludes damage caused by misuse, accidents or modifications to the product. Warranty is void if the user opens the handle for any reason.
Important information:
- Never use on or near live parts
- Never use on or near live electrical circuits
- Never use in explosive atmospheres
- Not intended for medical or veterinary use
- Avoid over-bending the shaft
- Do not open the handle for any reason
- No user serviceable parts inside
- Do not submerse the handle in any liquid
- Do not immerse the shaft in any solvent for extended periods of time

Accessories

Spare halogen lamp Extremely powerful for optimum illumination, even in dark areas	0213 0017
Clip on 45° mirror, Ø 10 mm For inspections at hard to access points	0554 1320
Attachable clip incl. magnet, Ø 10 mm e.g. for quickly gathering small, loose metal parts in ducts, shafts etc.	0554 1321

testo

Testo printer — Versatile infrared printer

The versatile printer with IRDA and infrared interface saves time since it stores the print data before printing it. Data is sent within two seconds. The measuring instrument is then immediately able to operate.

The readings are stored black on white with date and time.

Testo printer with cordless IRDA and infrared interface, 1 roll of thermal paper and 4 round cell batteries

Part no.	
0554 0547	

Technical data			
Printer type	Infrared-controlled thermal printer, adjustable contrast, prints graphics	Oper. temp.	0 to +50 °C
		Storage temp.	-40 to +60 °C
		Power supply	4 round cell batteries, 1.5 V or rechargeable batteries
Reception radius	Max. 2 m	Weight	430 g
Dimensions	147 x 77 x 47 mm		

Accessories	Part no.
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
Recharger for printer (with 4 standard rech. batteries), Rechargeable batteries are recharged externally	0554 0110

structure · measure · print on-site

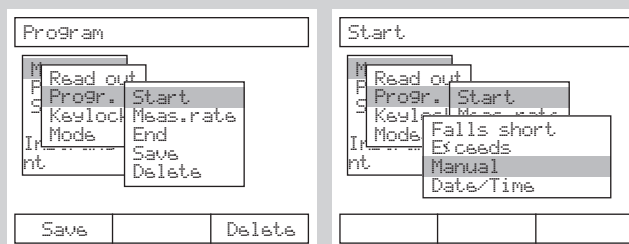## Structuring measurement data:

- Readings can be saved at individual locations
  - with guarantee of refinding.

- The "tree structure" - folders, sub-folders and measurement protocols - guarantees an uncomplicated view.

- Practical additional information such as measurement information or required value input can be saved with the location.

- The locations can be selected via barcode labels using the pen.

- It is easy to draw an effective tour plan using the locations list.

```
  1    testo 400          2    testo 400
 \.Week 35/02             \..HALL A1
+ ▣ HALL A1              ▢ WINDOW L1
+ ▣ HALL A2                ▢ WINDOW L2
+ ▣ HALL C3                ▢ WINDOW L3
                          ▢ WINDOW R1
                          ▢ WINDOW R2
                          ▢ Door 1
                          ▢ Door 2

 Page-  Change  Page+    Page-  Change  Page+
```
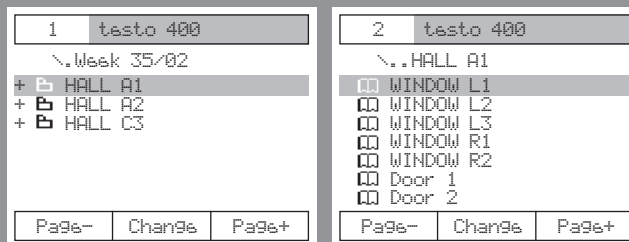
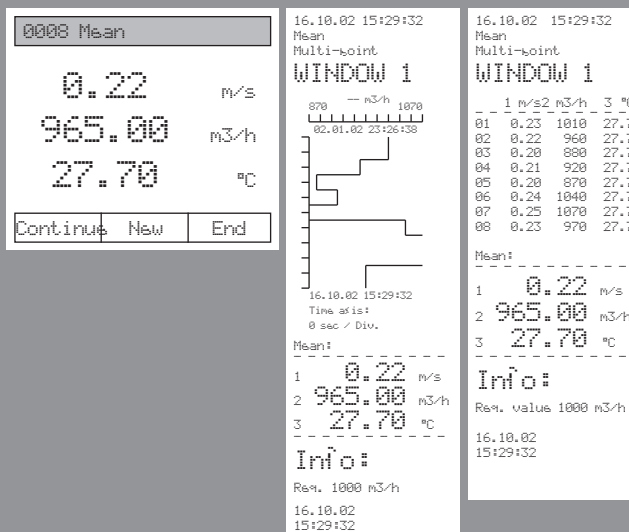## Long-term control made easy:

User-friendly data logging, not only for spot checks

- **The beginning of the measurement can be…**
  - determined manually each time.
  - activated if a user defined limit value is exceeded.
  - set according to date/time.

- **The measurement is completed when…**
  - the predefined number of readings is reached.
  - date/time is reached.
  - the memory is full.
  - ended manually.

- **Non-stop measurement via wrap-around memory…**
  - deletes the oldest respective value.
  - is deactivated manually.

```
Program                  Start
M┌Read out┐             M┌Read out┐
P│Progr.  │┌Start────┐  P│Progr. │Start┐
 │Keyloc│ │Meas.rate│   │Keyloc││Meas.rate│
 │Mode  │ │End      │   │Mode ││Falls short│
IM│      │ │Save     │  IM│    ││Exceeds  │
nt        │Delete    │  nt     ││Manual   │
          └─────────┘          ││Date/Time│
                                └─────────┘
 Save         Delete
```

Documentation on-site:

- The individual measurement protocol can be either saved or deleted following analysis.

- The printer immediately supplies the documentation required.

- The attachable comfort printer also offers graphical analysis options.

- Thermal paper for long-term legible measurement data documentation of up to 10 years.

```
0008 Mean

   0.22      m/s
 965.00      m3/h
  27.70      °C

Continue  New   End
```

```
16.10.02 15:29:32
Mean
Multi-point
WINDOW 1
870 — m3/h 1070
02.01.02 23:26:38



16.10.02 15:29:32
Time axis:
0 sec / Div.
Mean:
1    0.22   m/s
2  965.00   m3/h
3   27.70   °C
Info:
Req. 1000 m3/h
16.10.02
15:29:32
```

```
16.10.02 15:29:32
Mean
Multi-point
WINDOW 1
    1 m/s2 m3/h  3 °C
01  0.23 1010   27.7
02  0.22  960   27.7
03  0.20  880   27.7
04  0.21  920   27.7
05  0.20  870   27.7
06  0.24 1040   27.7
07  0.25 1070   27.7
08  0.23  970   27.7
Mean:
1    0.22   m/s
2  965.00   m3/h
3   27.70   °C
Info:
Req. value 1000 m3/h
16.10.02
15:29:32
```

prepare · analyse · file · document

Easy reading management:

- Preparation of the measurement:
  - The measurement program is determined and loaded into instrument
  - Tour plan is drawn up based on locations and is loaded into instrument.

- The measuring instrument is downloaded once measuring is complete:
  - The saved protocols are conveniently filed via the software using "Drag & Drop" or are analysed in Data.

- The readings are determined using the measuring instrument and can also be displayed online using the software.
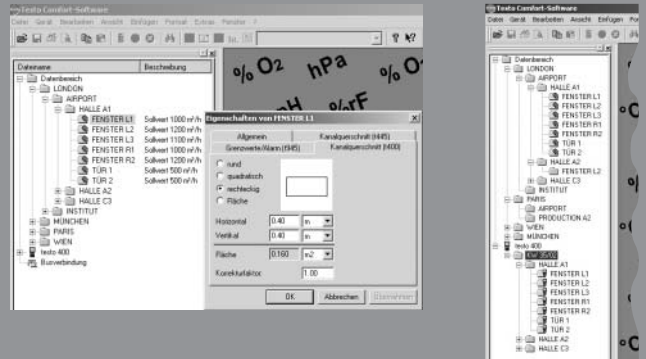
Comprehensive analysis, easy filing:

- Analysis:
  - with calculation functions
  - with crosshairs
  - with mean calculation
  - with calculation of standard deviation
  - taking all conventional refrigerants into consideration (refrigeration module, optional)

- Display:
  - as table or as graphic
  - as digit field or as histogram
  - with analog display
  - Measurement channels can be activated or deactivated at the touch of a button

- Documenting:
  - Data is transferred to Excel table using "Copy and Paste".
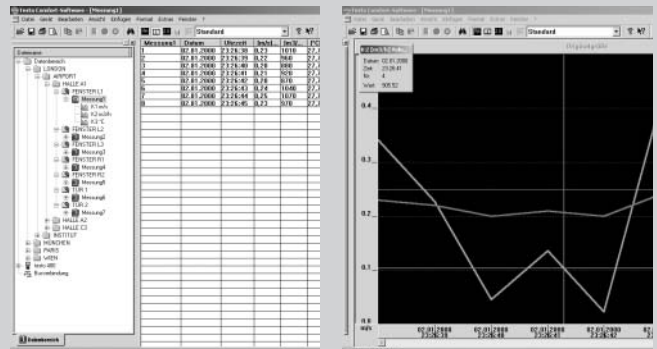
Individual configuration options:

- Your company logo can be included on the printouts.

- Functions can be selected from the function list and the finished profile can be saved.

- The online interface is available for LabVIEW software.

- Menu can be individually tailored to your needs.
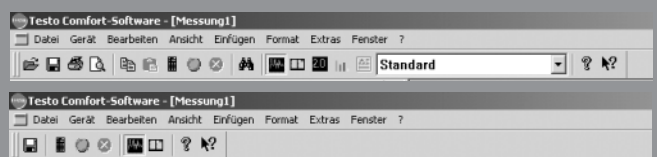
ComSoft 3 - Professional for:

· **Data loggers from the testo 175, testo 177 and testostor 171 series**

· **testo 945, testo 645, testo 445 and testo 545 monitoring instruments**

· **testo 950, testo 650, testo 400 reference measuring instruments (also as version for testo 454 and testo 350)**

ComSoft 3 - Professional with data management
Incl. database, analysis and graphics function, data analysis, trend curve (without interface)

Part no.
0554 0830

Accessories	Part no.
RS232 cable	0409 0178
Connects instrument to PC (1.8 m) for data transfer	

Ethernet adapter | Access Ethernet with testo measuring instruments

The new Ethernet adapter enables the following:

· On-site measurements, e.g. in production, storage halls, Incoming Goods

· Measuring instrument remains on site, transport not necessary

· Data inspection from office or administration

· Centralised filing of measurement data

Ethernet offers:

· Fast transmission of readings

· Use of an existing network without additional cabling

· Long transmission distances

· Identification of measuring instruments in system networks

Ethernet adapter, RS 232 - Ethernet incl. software driver, mains unit Facilitates data communication in network (not for use in Ex-zone)

Part no.	
0554 1711	

Long-term monitoring of ambient data

The parameters, temperature and humidity, are measured and saved on site by the datalogger. Using the Ethernet adapter, measurement data stored in the logger can be read out and filed via the PC network. The measurement data is then easily analysed and checked on your PC in the office.

The Ethernet adapter therefore has the following advantages:

· Affordable operation since it is no longer necessary to read out data on site or take the logger to the office.

· Fast access times because current measurement data can be accessed at any time.

Multi-point checks on site

Testo's handheld measuring instruments are used in production or in Incoming Goods to take spot checks on site. Using an Ethernet adapter, measurement data can be transmitted immediately to a central office which enables fast reaction times, if further actions are required.

Accessories	Part no.
System accessories: testo 400, testo 650, testo 950	
ComSoft 3 - Professional with data management, Incl. database, analysis and graphics function, data analysis, trend curve (without interface)	0554 0830
RS232 cable, Connects instrument to PC (1.8 m) for data transfer	0409 0178

Technical data			
Dimensions	45 x 48 x 14 mm	Management and software	Internet browser e.g. from Netscape or Microsoft Telnet
Oper. temp.	+0 to +70 °C		
Software	Microsoft Windows 2000 / NT 4.0 / ME / 98 / 95		
Power supply	Mains unit, 5 volt approx. 230 mA	Interface	Serial interface on computer board with terminal program
Humidity class	F to DIN 40040		
EMC	Radio interference and interference resistance		Provision of a local virtual COM port (Windows systems)
Interface	25 pin RS 232 connection with 25/9 pin adapter		
Logs	TCP/IP, LPR, Telnet, SNMP, DHCP DDNS, ARP, BOOTP, ICMP		

testo 400

The reference measuring instrument for A/C and ventilation systems

Precision reference class measuring instruments have everything the professional user needs to complete complicated measurement tasks efficiently, accurately and conveniently.

testo 400 includes the parameters temperature, CO2, rpm, current, voltage, relative humidity, pressure, velocity and volume flow.

Intelligent electronics ensure the latest technology is used thanks to software updates. The measuring instrument can always keep up with the measurement tasks at hand thanks to upgrades.

Upgradable and teachable, highly reliable and of the highest quality - they are the properties which guarantee that the customer is equipped for the future.

Useful instrument functions:

• System accuracy up to 0.05 °C and up to a resolution of 0.001 °C

• All functions of testo 650 and testo 950

• Input of cross-sections to volume flow calculation

• Absolute pressure compensation in thermal probes

• Density calculation for velocity measurement with reference to temperature, humidity and absolute pressure

• Turbulence degree measurement to DIN EN 27726, DIN 1946 Teil 2, ISO

• Assessment of volume flow measurements with calculation of total uncertainty of measurement in accordance with EN 12599 with VAC module (optional)

- With VAC module for velocity measurement in m/s, m³/h duct
- Clear graphics display
- 3 user defined function buttons
- Save or print at the touch of a button
- Mains connection/Quick battery recharge
- Attachable printer
- Prints readings on site in the matter of seconds
- Data communication via PC
- Barcode reader
- User friendly operation via cursor

Attachable printer
Readings can be printed on-site in the matter of seconds

Clear graphics display

Data communication by PC, barcode reader

3 user-defined function buttons

Saves or prints at the touch of a button

Easy operation with cursor

Power connection/quick battery recharge

2 user-defined probe sockets

Recommended set
Set for inspecting laboratory fume cupboards

- testo 400, multi-function measuring instrument, incl. battery, Li cell and calibration protocol (Part no. 0563 4001)
- Power unit 230 V/ 8 V/ 1 A, for instrument (European plug) (Part no. 0554 1084)
- Rechargeable battery set for instrument (4 rechargeables 2.4V/700mAh) (Part no. 0554 0196)
- Thermal anemometer, Ø 10 mm, w. telescopic handle, measures air flow in lab fume cupboards to DIN EN 14175 (draft) (Part no. 0635 1047)
- Standard ambient air probe up to +70°C (Part no. 0636 9740)
- Pressure probe, 2000 hPa, measures absolute pressure, in robust metal housing with impact protection, incl. quick-closing coupling (M8 x 0.5), magnet for fast attachment (Part no. 0638 1847)
- Precision pressure probe, 100 Pa, in robust metal housing with impact protection, incl. magnet for fast attachment, to measure differential pressure and velocity speeds (in connection with Pitot tube) (Part no. 0638 1347)
- Cable, 1.5 m long, connects probe with plug-in head to meas. instrument (Part no. 0430 0143)
- Comfort level probe for measuring degree of turbulence, with telescopic handle and stand. Fulfills DIN 1946 Part 2 or EN 12 599 requirements (Part no. 0628 0009)

We recommend:

ComSoft 3 - Professional with data management Incl. database, analysis and graphics function, data analysis, trend curve (without interface)	0554 0830
RS232 cable Connects instrument to PC (1.8 m) for data transfer	0409 0178
Attachable printer (securely attached) including 1 roll of thermal paper and batteries	0554 0570
SoftCase (protects instrument from impact) with carrier strap, magnetic holder and probe holder	0516 0401
SoftCase for attachable printer (protects printer from dirt/impact) Protects from impact and falls	0516 0411
System case (aluminium) for measuring instrument, probes and accessories Probes in lid make it easy to find parts in case	0516 0410
DKD calibration certificate/Velocity for laboratory fume cupboard probe	
ISO calibration certificate/Velocity for laboratory fume cupboard probe	

testo 400

testo 400, multi-function measuring instrument, incl. battery, Li cell and calibration protocol

Can be used for:
- Velocity, volume flow
- Humidity, pressure
- Temperature
- CO$_2$, rpm and current/voltage

Part no.	
0563 4001	

Recommended set

The pro set for assessing workplaces subjected to heat

- testo 400, multi-function measuring instrument, incl. battery, Li cell and calibration protocol (Part no. 0563 4001)
- Wet Bulb Globe temperature probe to assess workplaces subjected to heat, in accordance with ISO 7243 or DIN 33403, incl. WBGT case (Part no. 0635 8888)
- Attachable printer (securely attached) including 1 roll of thermal paper and batteries (Part no. 0554 0570)

We recommend:

ISO calibration certificate/Temperature For air/immersion probes, calibration points -8°C; 0°C; +40°C	0520 0181

testo 400, the Pro set for comfort level meas. & occupational safety/health

- testo 400, multi-function measuring instrument, incl. battery, Li cell and calibration protocol (Part no. 0563 4001)
- Comfort level probe for measuring degree of turbulence, with telescopic handle and stand. Fulfills DIN 1946 Part 2 or EN 12 599 requirements (Part no. 0628 0009)
- Attachable printer (securely attached) including 1 roll of thermal paper and batteries (Part no. 0554 0570)

We recommend:

CO2 probe measures indoor air quality and monitors the workplace. With plug-in head, connection cable 0430 0143 or 0430 0145 required	0632 1240
Cable, 1.5 m long, connects probe with plug-in head to meas. instrument PUR coating material	0430 0143
Standard ambient air probe up to +70°C Measures all physical parameters in the Mollier diagram	0636 9740
Quick-action surface probe with sprung thermocouple strip, measuring range short-term to +500°C	0604 0194
Cable, 1.5 m long, connects probe with plug-in head to meas. instrument PUR coating material	0430 0143

Accessories   Part no.

Accessories for measuring instrument

Memory upgrade to 500,000 readings Upgrades memory capacity (by Service)	0554 9481
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
Car charging adapter, ready to measure following recharging in car Battery is recharged while travelling in car	0554 0424
Spare Li cell to save RAM data When changing battery or rechargeable battery	0515 0028

Printer and Accessories

Attachable printer (securely attached) including 1 roll of thermal paper and batteries	0554 0570
Testo printer with cordless IRDA and infrared interface, 1 roll of thermal paper and 4 round cell batteries	0554 0547
Fast testo 575 printer, incl. 1 roll of thermal paper and batteries Infrared thermal line printer with graphics function	0554 1775
Recharger for printer (with 4 standard rech. batteries) Rechargeable batteries are recharged externally	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
Label thermal paper (Testo patent) for testo 575 printer (6 rolls), can be applied directly	0554 0561

Softcase for instrument and printer

SoftCase (protects instrument from impact) with carrier strap, magnetic holder and probe holder	0516 0401
SoftCase for attachable printer (protects printer from dirt/impact) Protects from impact and falls	0516 0411

Barcode and accessories

Barcode reader to read in measurement locations Quick and accurate allocation of reading to site	0554 0460
Barcode labels, self-adhesive (1200 off) for labelling site with barcode, printing via software	0554 0411
Adhesive pockets (50 off) for printout, paper barcode labels...	0554 0116

Software and Accessories

ComSoft 3 - Professional with data management Incl. database, analysis and graphics function, data analysis, trend curve	0554 0830
RS232 cable Connects instrument to PC (1.8 m) for data transfer	0409 0178
Ethernet adapter, RS 232 - Ethernet incl. software driver, mains unit Facilitates data communication in network	0554 1711
Electrical isolation for RS232 (connects measuring instrument to PC)	0554 0006

VAC module

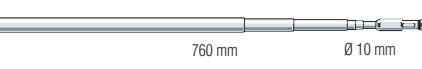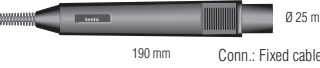|	
Memory upgrade to 500,000 readings Upgrades memory capacity (by Service)	0554 9481
VAC module upgrade Volume flow calculation in ducts with error calculation function in instrument	0450 4010
VAC module upgrade, PC software, (for ComSoft 3 software) Printout of standard measurement protocols	0554 4030
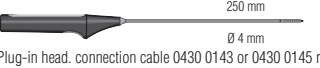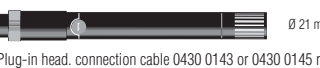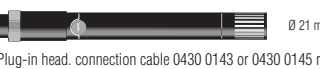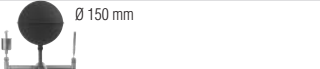
Refrigeration module

"Refrigeration technology" update with saved curves of all usual refrigerants	0554 4035

System case

Transport case (plastic) for measuring instrument, probes For secure and orderly storage	0516 0300
System case (plastic) for measuring instrument, probes and accessories Probes in lid make it easy to find parts in case	0516 0400
System case (aluminium) for measuring instrument, probes and accessories Probes in lid make it easy to find parts in case	0516 0410

testo 400 — Calibration certificates and Probe examples

Calibration Certificates	Part no.
Calibration certificates/Temperature	
ISO calibration certificate/Temperature For air/immersion probes, calibration points -18°C; 0°C; +60°C	0520 0001
ISO calibration certificate/Temperature Meas. instr. with air/immersion probe; cal. points 0°C; +150°C; +300°C	0520 0021
ISO calibration certificate/Temperature Thermometers with surface probe; calibration points +60°C; +120°C; +180°C	0520 0071
DKD calibration certificate/Temperature Meas. instr. with air/immersion probe; calibration points -20°C; 0°C; +60°C	0520 0211
DKD calibration certificate/Temperature Contact surface temperature probes; calibration points +100°C; +200°C; +300°C	0520 0271
Calibration certificates/Humidity	
ISO calibration certificate/Humidity Cal points freely selectable from 5 to 95%RH at +15 to +35°C or at -18 to +80°C	0520 0106
ISO calibration certificate/Humidity Electronic hygrometers; calibration points 11.3%RH and 75.3%RH at +25°C	0520 0006
ISO calibration certificate/Pressure dew point Two adjustment points -10/-40 °C tpd	0520 0136
ISO calibration certificate/Humidity Saturated saline solutions: calibration point 11.3%RH	0520 0013
ISO calibration certificate/Humidity Saturated saline solutions, calibration point 75.3%RH	0520 0083
DKD calibration certificate/Humidity Electronic hygrometers; calibration points 11.3%RH and 75.3%RH at +25°C	0520 0206
DKD calibration certificate/Humidity Cal. points freely selectable from 5 to 95%RH at +25°C or -20°C to +85°C	0520 0216
DKD calibration certificate/Humidity Saturated saline solutions; calibration point 11.3%RH	0520 0213
DKD calibration certificate/Humidity Saturated saline solutions; calibration point 75.3%RH	0520 0283

Calibration Certificates	Part no.
Calibration certificates/Pressure	
ISO calibration certificate/Pressure Differential pressure; 5 points distributed over meas. range	0520 0005
DKD calibration certificate/Pressure Diff. and pos. pressure; 6 meas. points distributed over meas. range (>0.6% of fsv)	0520 0225
ISO calibration certificate/Pressure Differential pressure, accuracy 0.1 to 0.6 (% of fsv)	0520 0025
DKD calibration certificate/Pressure Differential and positive pressure; 11 measuring points distributed over the instrument measuring range	0520 0215
ISO calibration certificate/Pressure Absolute pressure, accuracy 0.1 to 0.6 (% of full-scale value)	0520 0125
DKD calibration certificate/Pressure Absolute pressure; 11 measuring points distributed over meas. range	0520 0212
Calibration certificates/Velocity	
ISO calibration certificate/Velocity All velocity probes, calibration points selectable from 0.3 to 50 m/s at +25°C	0520 0104
ISO calibration certificate/Velocity Hot wire, vane anemometer, Pitot tube; calibration points 1; 2; 5; 10 m/s	0520 0004
ISO calibration certificate/Velocity Hot wire, vane anemometer, Pitot tube; calibration points 5; 10; 15; 20 m/s	0520 0034
ISO calibration certificate/Velocity Hot wire, vane anemometer; calibration points 0.5; 0.8; 1; 1.5 m/s	0520 0024
DKD calibration certificate/Velocity Hot wire, vane anemometer; calibration points 0.5; 1; 2; 5; 10 m/s	0520 0244
DKD calibration certificate/Velocity Hot wire, vane anemometer, Pitot tube; calibration points 2; 5; 10; 15; 20 m/s	0520 0204
DKD calibration certificate/Velocity Hot wire anemometer; calibration points 0.1; 0.2; 0.5; 0.8; 1 m/s	0520 0224

More probes	Illustration	Meas. range	Accuracy	Part no.
Globe thermometer to measure radiant heat	Ø 150 mm Conn.: Fixed cable	0 to +120 °C	±0.5 °C (0 to +49.9 °C) ±1 °C (+50 to +120 °C) Accuracy corresponds to ISO 7243, ISO 7726, DIN EN 27726, DIN 33403 requirements	0554 0670
Thermal anemometer, Ø 10 mm, w. telescopic handle, measures air flow in lab fume cupboards to DIN EN 14175 (draft)	760 mm Ø 10 mm	0 to +5 m/s 0 to +50 °C	±(0.02 m/s ±5% of mv) (0 to +5 m/s)	0635 1047
Ambient CO probe to measure CO level in ambient air	Ø 25 mm 190 mm Conn.: Fixed cable	0 to +500 ppm CO	±5% of mv (+100.1 to +500 ppm CO) ±5 ppm CO (0 to +100 ppm CO)	0632 1247
CO2 probe measures indoor air quality and monitors the workplace. With plug-in head, connection cable 0430 0143 or 0430 0145 required	Conn.: Plug-in head. connection cable 0430 0143 or 0430 0145 required	0 to +1 Vol. % CO_2 0 to +10000 ppm CO_2	±(50 ppm CO_2 ±2% of mv)(0 to +5000 ppm CO_2) ±(100 ppm CO_2 ±3% of mv)(+5001 to +10000 ppm CO_2)	0632 1240
Standard ambient air probe up to +70°C	Ø 12 mm Plug-in head. connection cable 0430 0143 or 0430 0145 required	0 to +100 %RH -20 to +70 °C	±0.4 °C (-10 to +50 °C) ±0.5 °C (remaining range) ±2 %RH (+2 to +98 %RH)	0636 9740
Duct humidity/temperature probe, can be connected to telescopic handle Telescopic handle 0430 9715, see Ordering data/Accessories	180 mm Ø 12 mm Fixed cable	0 to +100 %RH -20 to +70 °C	±0.4 °C (-10 to +50 °C) ±0.5 °C (remaining range) ±2 %RH (+2 to +98 %RH)	0636 9715
Thin humidity probe incl. 4 attachable protection caps for ambient air measurements, measurements in exhaust air ducts and equilibrium moisture measurements	250 mm Ø 4 mm Plug-in head. connection cable 0430 0143 or 0430 0145 required	0 to +100 %RH -20 to +70 °C	±0.4 °C (-10 to +50 °C) ±0.5 °C (-20 to -10.1 °C) ±0.5 °C (+50.1 to +70 °C) ±2 %RH (+2 to +98 %RH)	0636 2130
Highly accurate reference humidity/temp. probe incl. cal. cert.	Ø 21 mm Plug-in head. connection cable 0430 0143 or 0430 0145 required	0 to +100 %RH -20 to +70 °C	±0.4 °C (-10 to +50 °C) ±0.5 °C (remaining range) ±1 %RH (+10 to +90 %RH) ±2 %RH (remaining range)	0636 9741 *
Humidity/temperature probe	Ø 21 mm Plug-in head. connection cable 0430 0143 or 0430 0145 required	0... +100 %RH -20 to +70 °C	±0.4 °C (+0.1 to +50 °C) ±0.5 °C (-20 to 0 °C) ±0.5 °C (+50.1 to +70 °C) ±2 %RH (+2... +98 %RH)	0636 9742
Precision pressure probe, 100 Pa, in robust metal housing with impact protection, incl. magnet for fast attachment, to measure differential pressure and velocity speeds (in connection with Pitot tube)	Plug-in head. connection cable 0430 0143 or 0430 0145 required	0 to +100 Pa	±(0.3 Pa ±0.5% of mv)	0638 1347
Comfort level probe for measuring degree of turbulence, with telescopic handle and stand. Fulfills DIN 1946 Part 2 or EN 12 599 requirements	890 mm Ø 90 mm	0 to +5 m/s 0 to +50 °C	±(0.03 m/s ±4% of mv) (0 to +5 m/s) ±0.3 °C (0 to +50 °C)	0628 0009
Wet Bulb Globe temperature probe to assess workplaces subjected to heat, in accordance with ISO 7243 or DIN 33403, incl. WBGT case	Ø 150 mm	0 to +120 °C	In accordance with ISO 7243 or DIN 33403	0635 8888 ID No. 0699 4239/1

* in the temperature range from +10°C to +30°C

▶ See product publication "Multi-Function Measuring Instruments" for more probes ◀

testo 400 — Technical data

Technical data

Probe type	Vane	Thermal	Testo humid. sensor, cap.	Pressure	aw value
Meas. range	0 to +60 m/s	0 to +20 m/s	0 to +100 %RH	0 to +2000 hPa	0 to +1 aW
Accuracy ±1 digit	See probe data for system accuracy	±0.01 m/s (0 to +1.99 m/s) ±0.02 m/s (+2 to +4.9 m/s) ±0.04 m/s (+5 to +20 m/s)	See probe data	Probe 0638 1347 Probe 0638 1447 Probe 0638 1547 Probe 0638 1647 Probe 0638 1747 Probe 0638 1847 ±0.1% of mv Probe 0638 1741 Probe 0638 1841 Probe 0638 1941 Probe 0638 2041 Probe 0638 2141 ±0.2% of mv	See probe data
Resolution	0.01 m/s (for Ø 60/100 mm), 0.1 m/s (for rem. probes)	0.01 m/s (0 to +20 m/s)	0.1 %RH (0 to +100 %RH)	0.001 hPa (Probe 0638 1347) 0.001 hPa (Probe 0638 1447) 0.01 hPa (Probe 0638 1547) 0.1 hPa (Probe 0638 1647) 0.1 hPa (Probe 0638 1747) 0.1 hPa (Probe 0638 1847) 0.01 bar (Probe 0638 1741) 0.01 bar (Probe 0638 1841) 0.01 bar (Probe 0638 1941) 0.01 bar (Probe 0638 2041) 0.01 bar (Probe 0638 2141)	

Probe type	NTC	Pt100	Type K (NiCr-Ni)	Type S (Pt10Rh-Pt)	Type J (Fe–CuNi)
Meas. range	-40 to +150 °C	-200 to +800 °C	-200 to +1370 °C	0 to +1760 °C	-200 to +1000 °C
Accuracy ±1 digit	±0.2 °C (-10 to +50 °C) ±0.4 °C (-40 to -10.1 °C) ±0.4 °C (+50.1 to +150 °C)	±0.1 °C (-49.9 to +99.9 °C) ±0.4 °C (-99.9 to -50 °C) ±0.4 °C (+100 to +199.9 °C) ±1 °C (-200 to -100 °C) ±1 °C (+200 to +800 °C)	±0.4 °C (-100 to +200 °C) ±1 °C (-200 to -100.1 °C) ±1 °C (+200.1 to +1370 °C)	±1 °C (0 to +1760 °C)	±0.4 °C (-150 to +150 °C) ±1 °C (-200 to -150.1 °C) ±1 °C (+150.1 to +1000 °C)
Resolution	0.1 °C (-40 to +150 °C)	0.01 °C (-99.9 to +300 °C) 0.1 °C (-200 to -100 °C) 0.1 °C (+300.1 to +800 °C)	0.1 °C (-200 to +1370 °C)	1 °C (0 to +1760 °C)	0.1 °C (-200 to +1000 °C)

Probe type	CO2 probe	CO probe	Mechanical	Current/voltage measurement	Current/voltage measurement
Meas. range	0 to +1 Vol. % CO_2 0 to +10000 ppm CO_2	0 to +500 ppm CO	+20 to +20000 rpm	0 to +20 mA (0554 0007) 0/4 to 20 mA (0554 0528)	0 to +10 V
Accuracy ±1 digit	See probe data	±5% of mv (0 to +500 ppm CO)	(+20 to +20000 rpm)	±0.04 mA (0 to +20 mA) (0554 0007) See probe data (0554 0528)	±0.01 V (0 to +10 V)
Resolution			1 rpm (+20 to +20000 rpm)	0.01 mA (0 to +20 mA)	0.01 V (0 to +10 V)

Oper. temp.	0 to +50 °C
Storage temp.	-25 to +60 °C
Display	LCD, 4 lines
Battery type	1,5 V AA
Battery life	18 h
PC	RS232 interface
Weight	500 g
Material/Housing	ABS
Warranty	3 years
Memory	45000

Memory space in basic version: 128 KB corresponding to approx. 45,000 readings
With memory upgrade: 1 MB corresponding to approx. 500,000 readings
Other features: automatic probe recognition
Power: Battery/rech. battery, alternatively 8 V mains unit
Battery life in continuous operation with 2 T/C probes

Always at your service!