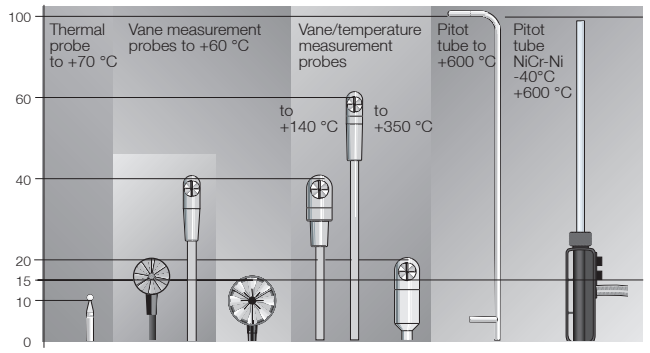
Multi-Function Measuring Instruments

Measurement and application ranges of flow probes

Probe selection

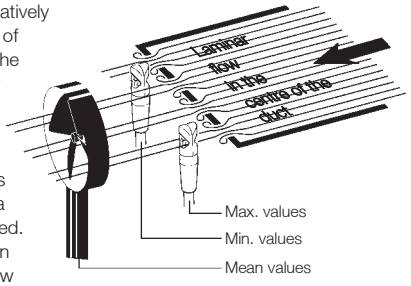
The flow measurement range 0 to 100 m/s can be divided into three sections:
– Low-speed velocity 0 to 5 m/s
– Mid-speed velocity 5 to 40 m/s
– High-speed velocity 40 to 100 m/s.
Thermal probes are used for accurate measurements in the range 0 to 5 m/s. Vane probes are ideal for velocities from 5 to 40 m/s. The measuring range of the Pitot tube depends on the differential pressure probe used. The new 100 Pa probe can therefore be used for the exact measurement of flow speed from approx. 1 m/s to 12 m/s. The Pitot tube yields optimum results in the higher velocity range. An additional criterion when selecting the right velocity probe is the temperature. Thermal sensors can normally be used at up to approx. +70 °C. Special design vane probes can be used to maximum +350 °C. Pitot tubes are used for temperatures above +350 °C.

Measurement and application ranges of flow probes



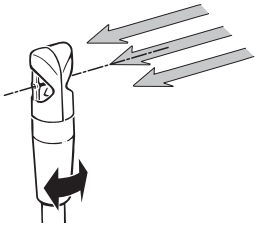
Supply/Returns

The air vent greatly changes the relatively uniform flow inside the duct. Areas of higher flow velocity are created at the free vent surfaces and areas of low flow velocity and swirl at the grids. The flow profile steadies at a distance from the the grid depending on the grid design but is usually 20 cm. For best accuracy, a large diameter vane is recommended. The area of the vane helps to get an average reading of the turbulent flow from the grid.

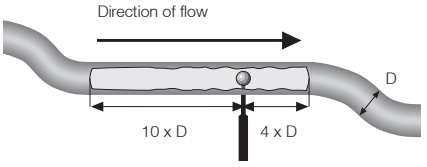


Positioning in air current

The vane probe is set exactly if the flow direction is parallel to the vane axis. If the measuring probe is turned slightly in the air current, the value shown in the instrument changes. The measuring probe is positioned exactly in the air current if the value shown is at max.
When measuring in a duct there should also be a minimum of ten diameters of straight run before the measuring spot and four diameters of straight run after the spot for best results. By design, vanes are less influenced by turbulence than thermal probes or Pitot tubes.



Site selection



You should measure in a straight part of the duct, if possible. The duct part should have a minimum of ten diameters of straight run before the measuring spot and four diameters of straight run after the measuring spot. The flow profile should not be interrupted in any way by flaps, dips, angles etc.

Measurements at suction apertures using a volume flow funnel

Even without the disturbing effects of a grid in an aperture, the lines of flow are not directional and the flow profile is irregular. Because a partial vacuum in the duct draws air out of the room in a funnel shape even a short distance from the aperture, there is no defined area in the room over which a measurement could be made. Therefore, only the duct or funnel measurement yields reproducible results.
Measuring funnels of various sizes are available for such applications.
These create defined flow conditions at a known distance from the grid with a fixed volume. A velocity probe is positioned centrally and secured. The volume flow is calculated from the velocity multiplied by the funnel factor (e.g. funnel factor 22).

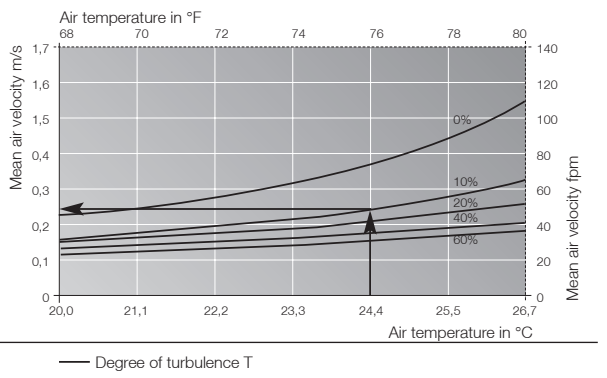
Flow measurement in ducts

As part of approval measurements, indirect measuring procedures (grid measurements) are used to measure air flows.
The following procedures are suggested in VDI 2080/EN 12599:
– Trivial procedure for grid measurements in square cross-sections.
– Centroidal axis procedures for grid measurements in circular cross-sections
– Loglinear procedure for grid measurements in circular cross sections.

Measuring ambient air velocity using testo 400 in accordance with DIN 1946 Part 2, ANSI/Ashrae 55-1992

Ambient air velocity is a very important parameter in the thermal comfort of people in rooms. testo 400 supplies the current and mean air velocities. The maximum permissible mean air velocity depends on the air temperature measured by testo 400 and the amount of turbulence calculated from the air velocity. The example shows a permissible mean air velocity of 0.26 m/s with an air temperature measured at 24.4 °C and an automatically calculated degree of turbulence of 10 %.

Ambient air velocity



Contents

Measurement systems

Accessories

testo 445

Service instrument for ventilation/air conditioning systems

The testo 445 VAC instrument measures temperature, relative humidity, dew point, absolute humidity, degree of humidity, enthalpy, all types of air velocity (in ducts, duct openings or extractors), volume flow, pressure and indoor air quality.

Data can be saved according to location and then analysed on PC or printed on the Testo printer on site.

- Automatic mean calculation and volume flow measurement
- Automatic allocation of duct cross-section to location (max. 99 locations)
- Internal datalogger (3,000 readings)
- Simultaneous measurement of up to 6 parameters

testo 445, VAC measuring instrument, incl. TopSafe, battery and calibration protocol

Part no. **0563 4450**

Set

Starter set for flow measurement in ducts (Part no. 0563 4451)

- testo 445, VAC measuring instrument, incl. TopSafe, battery and calibration protocol (Part no. 0563 4450)
- Vane probe, Ø 16 mm, with telescopic handle, Tmax +60°C (Part no. 0628 0005)
- Transport case (plastic) for measuring instrument, probes and accessories (Part no. 0516 0445)

Set

Starter set for flow/climate measurements in ducts (Part no. 0563 4452)

- testo 445, VAC measuring instrument, incl. TopSafe, battery and calibration protocol (Part no. 0563 4450)
- Quick-action hot wire probe, Ø 10 mm, with telescopic handle, for measurements in the lower velocity range with direction recognition (Part no. 0635 1041)
- Standard ambient air probe up to +70°C (Part no. 0636 9740)
- Transport case (plastic) for measuring instrument, probes and accessories (Part no. 0516 0445)
- Cable, 1.5 m long, connects probe with plug-in head to meas. instrument (Part no. 0430 0143)

Set

Starter set for flow/climate measurements in ducts (Part no. 0563 4453)

- testo 445, VAC measuring instrument, incl. TopSafe, battery and calibration protocol (Part no. 0563 4450)
- Vane probe, Ø 16 mm, with telescopic handle, Tmax +60°C (Part no. 0628 0005)
- Standard ambient air probe up to +70°C (Part no. 0636 9740)
- Transport case (plastic) for measuring instrument, probes and accessories (Part no. 0516 0445)
- Cable, 1.5 m long, connects probe with plug-in head to meas. instrument (Part no. 0430 0143)

Set

The affordable pro set for velocity/ambient air measurements in ducts and at duct openings. (Part no. 0563 4454)

- testo 445, VAC measuring instrument, incl. TopSafe, battery and calibration protocol (Part no. 0563 4450)
- Vane probe, Ø 16 mm, with telescopic handle, Tmax +60°C (Part no. 0628 0005)
- Vane probe, Ø 60 mm, with telescopic handle, for integrating velocity measurement (Part no. 0635 9449)
- Standard ambient air probe up to +70°C (Part no. 0636 9740)
- Transport case (plastic) for measuring instrument, probes and accessories (Part no. 0516 0445)
- Cable, 1.5 m long, connects probe with plug-in head to meas. instrument (Part no. 0430 0143)

Set

The Pro set for convenient monitoring of air conditioning/ventilation units parameters. (Part no. 0563 4455)

- testo 445, VAC measuring instrument, incl. TopSafe, battery and calibration protocol (Part no. 0563 4450)
- Bendable vane probe (can be bent by 90°), Ø 100 mm, attachable to handle or telescopic handle, for measurements on ventilation outlets (Part no. 0635 9340)
- Vane/temperature probe, Ø 16 mm, attachable to handle or telescopic handle (Part no. 0635 9540)
- Professional telescopic handle for plug-in vane probes, max. 1 m long, extension on request (Part no. 0430 0941)
- Standard ambient air probe up to +70°C (Part no. 0636 9740)
- Cable, 1.5 m long, connects probe with plug-in head to meas. instrument (Part no. 0430 0143)
- Pressure probe, 100 hPa, measures differential pressure and velocities (in connection with Pitot tube) (Part no. 0638 1545)
- Pitot tube, 500 mm long, stainless steel, measures flow velocity when used with pressure probes 0638 1345/..1445/..1545 (Part no. 0635 2045)
- Magnetic holder for pressure probes (Part no. 0554 0225)
- System case (plastic) for measuring instrument, probes and accessories (Part no. 0516 0400)

Set

Set for monitoring Indoor Air Quality (Part no. 0563 4456)

- testo 445, VAC measuring instrument, incl. TopSafe, battery and calibration protocol (Part no. 0563 4450)
- CO2 probe measures indoor air quality and monitors the workplace. With plug-in head, connection cable 0430 0143 or 0430 0145 required (Part no. 0632 1240)
- 3-function probe for simultaneous measurement of temperature, humidity and velocity. With plug-in head, 0430 0143 connection cable required (Part no. 0635 1540)
- Transport case (plastic) for measuring instrument, probes and accessories (Part no. 0516 0445)
- Cable, 1.5 m long, connects probe with plug-in head to meas. instrument (Part no. 0430 0143)
- Cable, 1.5 m long, connects probe with plug-in head to meas. instrument (Part no. 0430 0143)

testo 445

Practical accessories and technical data

Accessories	Part no.
Transport and Protection	
Transport case (plastic) for measuring instrument, probes and accessories Larger version for safe and clearly arranged storage	0516 0445
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
Additional Accessories and Spare Parts	
9V rech. battery for instrument Instead of battery	0515 0025
Plug-in mains unit For mains operation and recharging battery in instrument	0554 0088
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
Extension cable, 5 m long, between plug-in head cable and instrument PUR coating material	0409 0063
Printer and Accessories	
Testo printer with cordless IRDA and infrared interface, 1 roll of thermal paper and 4 round 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) 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
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
Calibration Certificates	
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
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

Technical data			
Probe type	**Type K (NiCr-Ni)**	**Type J (Fe-CuNi)**	**NTC**
Meas. range	-200 to +1370 °C	-200 to +1000 °C	-50 to +150 °C
Accuracy ±1 digit	±0.5% of mv (-200 to -60 °C) ±0.5% of mv (+60 to +1370 °C) ±0.3 °C (-60 to +60 °C)	±0.5% of mv (-200 to -60 °C) ±0.5% of mv (+60 to +1000 °C) ±0.3 °C (-60 to +60 °C)	±0.5% of mv (+100 to +150 °C) ±0.2 °C (-25 to +74.9 °C) ±0.4 °C (-50 to -25.1 °C) ±0.4 °C (+75 to +99.9 °C)
Resolution	0.1 °C (-200 to +1370 °C)	0.1 °C (-200 to +1000 °C)	0.1 °C (-50 to +150 °C)

Probe type	**Testo humid. sensor, cap.**	**Vane**	**Thermal**
Meas. range	0 to +100 %RH	0 to +60 m/s	0 to +20 m/s
Accuracy ±1 digit	See probe data	See probe data	See probe data
Resolution	0.1 %RH (0 to +100 %RH)	0.01 m/s (0 to +60 m/s)	0.01 m/s (0 to +10 m/s) 0.1 m/s (+10.1 to +20 m/s)

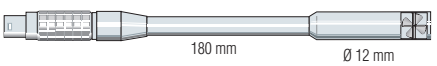
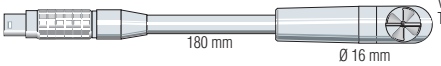
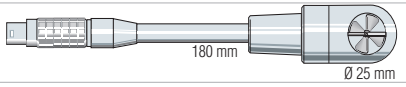
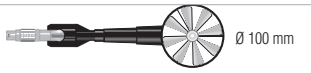
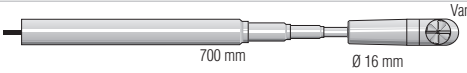
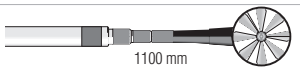
Probe type	**Pressure**	**CO2 probe**	**CO2 probe**
Meas. range	See pressure probes	0 to +1 Vol. % CO_2	0 to +10000 ppm CO_2
Accuracy ±1 digit	±0.1% of mv	See probe data	±(100 ppm CO_2 ±3% of mv) (+5000 to +10000 ppm CO_2) ±(500 ppm CO_2 ±2% of mv) (0 to +5000 ppm CO_2)
Resolution	0.001 hPa (Sonde 0638 1345) 0.001 hPa (Sonde 0638 1445) 0.01 hPa (Sonde 0638 1545) 1 hPa (Sonde 0638 1645)	0 Vol. % CO_2 (0 to +1 Vol. % CO_2)	1 ppm CO_2 (0 to +10000 ppm CO_2)

Probe type	**CO probe**
Meas. range	0 to +500 ppm CO
Accuracy ±1 digit	±5% of mv (+100 to +500 ppm CO) ±5 ppm CO (0 to +100 ppm CO)
Resolution	1 ppm CO (0 to +500 ppm CO)

Oper. temp.	0 to +50 °C
Storage temp.	-20 to +70 °C
Display	LCD, 4 lines
Battery type	9V block battery
Battery life	45 h
PC	RS232 interface
Weight	255 g
Material/Housing	ABS
Warranty	2 years
Memory	3000
Dimensions	215 x 68 x 47 mm

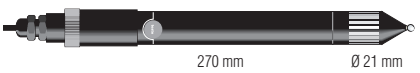
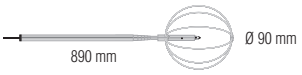
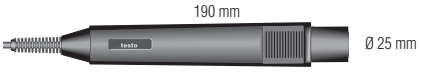
Battery life: 6-45 h (depending on probe)
Mains conn. and batt. rech. in instr.
Calculated humidity parameters: td, g/m3, g/kg pressure-compensated, J/g
Calculated volume flow: m3/h (e.g. 0 to 99999 m3/h), m3/min, m3/s, l/s, cfm
Calculated velocity values (density-compensated): 0 to 100 m/s; 0 to 99999 m3/h
Humidity measurement: Measuring range -50 to 180°C; See Probes for accuracy
Accuracy of Type K, J: Additional error via operation temperature 0.2 °C (adjustment point)

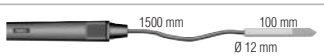
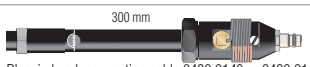
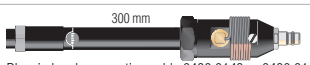
Suitable probes at a glance

Probes	Illustration	Probe type	Meas. range	Accuracy	Part no.
Vane probe, Ø 12 mm, can be attached to handle or telescopic handle		Vane	+0.6 to +20 m/s Oper. temp. -30 to +140 °C	±(0.2 m/s ±1% of mv) (+0.6 to +20 m/s)	0635 9443
Vane/temperature probe, Ø 16 mm, attachable to handle or telescopic handle		Vane Type K (NiCr-Ni)	+0.4 to +60 m/s -30 to +140 °C	±(0.2 m/s ±1% of mv) (+0.4 to +60 m/s)	0635 9540
Vane/temperature probe, Ø 25 mm, can be attached to handle or telescopic handle		Vane Type K (NiCr-Ni)	+0.4 to +40 m/s -30 to +140 °C	±(0.2 m/s ±1% of mv) (+0.4 to +40 m/s)	0635 9640
Bendable vane probe (can be bent by 90°), Ø 60 mm, attachable to handle or telescopic handle, for measurements on ventilation outlets		Vane	+0.25 to +20 m/s Oper. temp. 0 to +60 °C	±(0.1 m/s ±1.5% of mv) (+0.25 to +20 m/s)	0635 9440
Bendable vane probe (can be bent by 90°), Ø 100 mm, attachable to handle or telescopic handle, for measurements on ventilation outlets		Vane	+0.1 to +15 m/s Oper. temp. 0 to +60 °C	±(0.1 m/s ±1.5% of mv) (+0.1 to +15 m/s)	0635 9340
Affordable, robust hot bulb probe, Ø 3 mm, for measurements in the lower velocity range, with handle		Hot bulb NTC	0 to +10 m/s -20 to +70 °C	±(0.03 m/s ±5% of mv) (0 to +10 m/s)	0635 1549
Robust hot bulb probe, Ø 3 mm, with handle and telescopic handle for measurements in the lower velocity range		Hot bulb NTC	0 to +10 m/s -20 to +70 °C	±(0.03 m/s ±5% of mv) (0 to +10 m/s)	0635 1049
Quick-action hot wire probe, Ø 10 mm, with telescopic handle, for measurements in the lower velocity range with direction recognition		Hot wire NTC	0 to +20 m/s -20 to +70 °C	±(0.03 m/s ±4% of mv) (0 to +20 m/s)	0635 1041
Vane probe, Ø 16 mm, with telescopic handle, Tmax +60°C		Vane	+0.6 to +40 m/s	±(0.2 m/s ±1.5% of mv) (+0.6 to +40 m/s)	0628 0005
Vane probe, Ø 60 mm, with telescopic handle, for integrating velocity measurement		Vane	+0.25 to +20 m/s	±(0.1 m/s ±1.5% of mv) (+0.25 to +20 m/s)	0635 9449
High temperature vane probe, Ø 25 mm, with handle for continuous measurements up to +350°C		Vane Type K (NiCr-Ni)	+0.6 to +20 m/s -40 to +350 °C	±(0.3 m/s ±1% of fsv) (+0.6 to +20 m/s)	0635 6045
Precision pressure probe, 100 Pa, measures differential pressure and velocities (in connection with Pitot tube)		Differential pressure probe	0 to +100 Pa	±(0.3 Pa ±0.5% of mv) (0 to +100 Pa)	0638 1345
Pressure probe, 10 hPa, measures differential pressure and velocities (in connection with Pitot tube)		Differential pressure probe	0 to +10 hPa	±0.03 hPa (0 to +10 hPa)	0638 1445

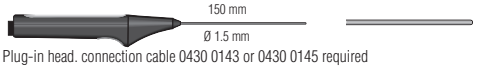
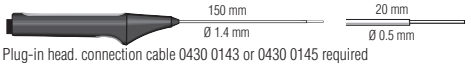
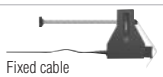
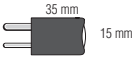
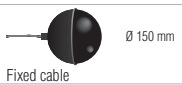
testo 445

Suitable probes at a glance

Probes	Illustration	Probe type	Meas. range	Accuracy	Part no.
Pressure probe, 100 hPa, measures differential pressure and velocities (in connection with Pitot tube)		Differential pressure probe	0 to +100 hPa	±0.5% of mv (+20 to +100 hPa) ±0.1 hPa (0 to +20 hPa)	0638 1545
Pressure probe, 2000 hPa, measures absolute pressure		Absolute pressure probe	0 to +2000 hPa	±5 hPa (0 to +2000 hPa)	0638 1645
Pitot tube, 500 mm long, stainless steel, measures flow velocity when used with pressure probes 0638 1345/..1445/..1545		Ø 7 mm	Oper. temp. 0 to +600 °C		0635 2045
Pitot tube, 350 mm long, stainless steel, measures flow velocity when used with pressure probes 0638 1345/..1445/..1545		Ø 7 mm	Oper. temp. 0 to +600 °C		0635 2145
Pitot tube, 300 mm long, stainless steel, measures flow velocity when used with pressure probes 0638 1345/..1445/..1545		Ø 4 mm	Oper. temp. 0 to +600 °C		0635 2245
Pitot tube, 1000 mm long, stainless steel, measures flow velocity when used with pressure probes 0638 1345/..1445/..1545		Ø 7 mm	Oper. temp. 0 to +600 °C		0635 2345
3-function probe for simultaneous measurement of temperature, humidity and velocity. With plug-in head, 0430 0143 connection cable required		Hot bulb Testo humid. sensor, cap. NTC	0 to +10 m/s 0 to +100 %RH -20 to +70 °C	±(0.03 m/s ±5% of mv)(0 to 10 m/s) ±2 %RH (+2 to +98 %RH) ±0.4 °C (0 to +50 °C) ±0.5 °C (remaining range)	0635 1540
Comfort level probe for measuring degree of turbulence, with telescopic handle and stand. Fulfills DIN 1946 Part 2 or EN 12 599 requirements		Hot wire NTC	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
CO2 probe measures indoor air quality and monitors the workplace. With plug-in head, connection cable 0430 0143 or 0430 0145 required		CO2 probe	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
Ambient CO probe to measure CO level in ambient air		CO probe	0 to +500 ppm CO	±5% of mv (+100.1 to +500 ppm CO) ±5 ppm CO (0 to +100 ppm CO)	0632 1247

More probes	Illustration	Meas. range	Accuracy		t_{90}	Part no.
Standard ambient air probe up to +70°C	 Plug-in head. connection cable 0430 0143 or 0430 0145 required	0 to +100 %RH -20 to +70 °C	±2 %RH (+2 to +98 %RH)	±0.4 °C (-10 to +50 °C) ±0.5 °C (remaining range)	12 s	0636 9740
Duct humidity/temperature probe, can be connected to telescopic handle	 Fixed cable	0 to +100 %RH -20 to +70 °C	±2 %RH (+2 to +98 %RH)	±0.4 °C (-10 to +50 °C) ±0.5 °C (remaining range)	12 s	0636 9715
Thin humidity probe incl. 4 attachable protection caps for ambient air measurements, measurements in exhaust air ducts and equilibrium moisture measurements	 Plug-in head. connection cable 0430 0143 or 0430 0145 required	0 to +100 %RH -20 to +70 °C	±2 %RH (+2 to +98 %RH)	±0.4 °C (-10 to +50 °C) ±0.5 °C (-20 to -10.1 °C) ±0.5 °C (+50.1 to +70 °C)	15 s	0636 2130
Highly accurate reference humidity/temp. probe incl. cal. cert.	 Plug-in head. connection cable 0430 0143 or 0430 0145 required	0 to +100 %RH -20 to +70 °C	±1 %RH (+10 to +90 %RH) ±2 %RH (remaining range)	±0.4 °C (-10 to +50 °C) ±0.5 °C (remaining range)	12 s	0636 9741
Flexible humidity probe with mini module for meas. e.g. on material testing rigs, module cable length 1500mm, probe tip 50x19x7mm	 Plug-in head. connection cable 0430 0143 or 0430 0145 required	0 to +100 %RH -20 to +125 °C	±2 %RH (+2 to +98 %RH)	±0.4 °C (-10 to +50 °C) ±0.5 °C (remaining range)	20 s	0628 0013
Sword probe for measuring humidity and temperature in stacked material	 Plug-in head. connection cable 0430 0143 or 0430 0145 required	0 to +100 %RH -20 to +70 °C	±2 %RH (+2 to +98 %RH)	±0.4 °C (-10 to +50 °C) ±0.5 °C (-20 to -10.1 °C) ±0.5 °C (+50.1 to +70 °C)	12 s	0636 0340
High humidity level probe w/ heated sensor element, no humidity on sensor	 Plug-in head. connection cable 0430 0143 or 0430 0145 required	0 to +100 %RH -20 to +85 °C	±2.5 %RH (0 to +100 %RH)	±0.4 °C (-10 to +50 °C) ±0.5 °C (-20 to -10.1 °C) ±0.5 °C (+50.1 to +85 °C)	30 s	0636 2142
Robust humidity probe e.g. for measuring equilibrium moisture or for measurements in exhaust ducts to +120°C	 Plug-in head. connection cable 0430 0143 or 0430 0145 required	0 to +100 %RH -20 to +120 °C	±2 %RH (+2 to +98 %RH)	±0.4 °C (-10 to +50 °C) ±0.5 °C (remaining range)	30 s	0636 2140
Robust high temperature/humidity probe up to +180°C	 Plug-in head. connection cable 0430 0143 or 0430 0145 required	0 to +100 %RH -20 to +180 °C	±2 %RH (+2 to +98 %RH)	±0.4 °C (+0.1 to +50 °C) ±0.5 °C (remaining range)	30 s	0628 0021
Flexible humidity probe (does not retain shape) for measurements in inaccessible places	 Plug-in head. connection cable 0430 0143 or 0430 0145 required	0 to +100 %RH -20 to +180 °C	±2 %RH (+2 to +98 %RH)	±0.4 °C (+0.1 to +50 °C) ±0.5 °C (-20 to 0 °C) ±0.5 °C (+50.1 to +180 °C)	30 s	0628 0022
Standard pressure dew point probe for measurements in compressed air systems	 Plug-in head. connection cable 0430 0143 or 0430 0145 required	0 to +100 %RH -30 to +50 °C tpd		±0.9 °C tpd (+0.1 to +50 °C tpd) ±1 °C tpd (-4.9 to 0 °C tpd) ±2 °C tpd (-9.9 to -5 °C tpd) ±3 °C tpd (-19.9 to -10 °C tpd) ±4 °C tpd (-30 to -20 °C tpd)	300 s	0636 9840
Precision pressure dew point probe for measurements in compressed air systems incl. cert. with test point -40°C tpd	 Plug-in head. connection cable 0430 0143 or 0430 0145 required	0 to +100 %RH -60 to +50 °C tpd		±0.8 °C tpd (-4.9 to +50 °C tpd) ±1 °C tpd (-9.9 to -5 °C tpd) ±2 °C tpd (-19.9 to -10 °C tpd) ±3 °C tpd (-29.9 to -20 °C tpd) ±4 °C tpd (-40 to -30 °C tpd)	300 s	0636 9841
Flexible humidity probe (retains shape) for measurements at inaccessible points	 Plug-in head. connection cable 0430 0143 or 0430 0145 required	0 to +100 %RH -20 to +125 °C	±2 %RH (+2 to +98 %RH)	±0.4 °C (-10 to +50 °C) ±0.5 °C (-20 to -10.1 °C) ±0.5 °C (+50.1 to +125 °C)	30 s	0628 0014

The measuring instrument inside TopSafe is waterproof with this probe.

Probes	Illustration	Meas. range	Accuracy	t_{99}	Part no.
Quick-action surface probe with sprung thermocouple strip, measuring range short-term to +500°C	 Plug-in head. connection cable 0430 0143 or 0430 0145 required	-200 to +300 °C	Class 2	3 s	0604 0194
Super quick-action immersion/penetration probe for measurements in liquids	 Plug-in head. connection cable 0430 0143 or 0430 0145 required	-200 to +600 °C	Class 1	1 s	0604 0493
Super quick-action immersion/penetration probe for measurements in gases and liquids with a low-mass tip	 Plug-in head. connection cable 0430 0143 or 0430 0145 required	-200 to +600 °C	Class 1	1 s	0604 9794
Pipe wrap probe for pipes with up to 2" diameter	 Fixed cable	-60 to +130 °C	Class 2	5 s	0600 4593
Spare meas. head for pipe wrap probe		-60 to +130 °C	Class 2	5 s	0602 0092
Globe thermometer to measure radiant heat	 Fixed cable	0 to +120 °C Accuracy corresponds to ISO 7243, ISO 7726, DIN EN 27726, DIN 33403 requirements	±0.5 °C (0 to +49.9 °C) ±1 °C (+50 to +120 °C)		0554 0670

See testo 400 for more probes

Accessories for velocity probes, pressure probes	Part no.
Professional telescopic handle for plug-in vane probes, max. 1 m long, extension on request	0430 0941
Extension for telescopic handle, 2 m long Please also order the 0409 0063 extension cable	0430 0942
Handle for plug-in vane probes	0430 3545
Swan neck, flexible connection between probe and connection part	0430 0001
Extension cable, 5 m long, between plug-in head cable and instrument PUR coating material	0409 0063
Magnetic probe holder for vane probes	0554 0430
Connection hose, silicone, 5m long Max. load 700 hPa (mbar)	0554 0440
Magnetic holder for pressure probes For pressure probes 0638 1345/..1445/..1545/..1645	0554 0225
Cover plugs for test holes (50 off)	0554 4001

Accessories for temperature probes	Part no.
Silicone heat paste (14g), Tmax = +260°C Improves heat transfer in surface probes	0554 0004
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	0430 0145
Extension cable, 5 m long, between plug-in head cable and instrument PUR coating material	0409 0063
Telescopic handle, max. 1 m, for probe with plug-in head Cable: 2.5 m long, PUR coating material	0430 0144

Accessories: Humidity, 3-function probe	Part no.
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	0430 0145
Extension cable, 5 m long, between plug-in head cable and instrument PUR coating material	0409 0063
Telescopic handle, max. 1 m, for probe with plug-in head Cable: 2.5 m long, PUR coating material	0430 0144
Telescopic handle, 340 - 800mm long	0430 9715
Control and humidity adjustment set 11.3%RH/75.3%RH incl. adapter for humidity probes	0554 0660
Adapter for humidity adjustment of 3-function probe 0635 1540 Order with adjustment set	0554 0661
Control and storage humidity (33%RH) for humidity probes	0554 0636
Metal protection cage, Ø 21 mm for humidity probes For velocities of less than 10 m/s	0554 0665
Metal protection cage, Ø 12 mm for humidity probes For velocities of less than 10 m/s	0554 0755
Wire mesh filter, Ø 21 mm, for metal protection cage and plastic cap Protects from dirt and damage. Applications: meteorology, splashwater, condensation	0554 0667
Cap with wire mesh filter, Ø 12 mm	0554 0757
Teflon sintered filter, Ø 21 mm, for corrosive substances High humidity range (long-term measurements), high velocities	0554 0666
Teflon sintered filter, Ø 12 mm, for corrosive substances High humidity range (long-term measurements), high velocities	0554 0756
Stainless steel sintered cap, Ø 21 mm, can be screwed onto humidity probe Protection in case of high mechanical load and high velocities	0554 0640
Stainless steel sintered cap, Ø 12 mm, is screwed onto humidity probe For measurements at high velocity speeds or in dirt ingressed air	0554 0647
Teflon cap, Ø 5 mm, attachable, PTFE material, (5 off) Dust protection, high humidity measurements, high flow velocities for humidity probe 0636 2130	0554 1031
Teflon sintered filter, Ø 12 mm, for corrosive substances High humidity range (non-stop measurements), high flow speeds	0554 0758

The measuring instrument inside TopSafe is waterproof with this probe.

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, flow 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 Part 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
Prints readings on site in the matter of seconds

Clear graphics display

Data communication with PC, barcode reader

3 user defined function buttons

Saves or prints at the touch of a button

Easy operation with cursor

Mains connection/Fast battery recharging

2 user-defined probe sockets

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

For fast measurements on VAC systems

- testo 400, multi-function measuring instrument, incl. battery, Li cell and calibration protocol (Part no. 0563 4001)
- Memory upgrade to 500,000 readings (Part no. 0554 9481)
- VAC module upgrade (Part no. 0450 4010)
- ComSoft 3 - Professional with data management (Part no. 0554 0830)
- VAC module upgrade, PC software, (for ComSoft 3 software) (Part no. 0554 4030)
- RS232 cable (Part no. 0409 0178)
- Bendable vane probe (can be bent by 90°), Ø 100 mm, attachable to handle or telescopic handle, for measurements on ventilation outlets (Part no. 0635 9340)
- Vane/temperature probe, Ø 16 mm, attachable to handle or telescopic handle (Part no. 0635 9540)
- Professional telescopic handle for plug-in vane probes, max. 1 m long, extension on request (Part no. 0430 0941)
- Attachable printer (securely attached) including 1 roll of thermal paper and batteries (Part no. 0554 0570)
- SoftCase (protects instrument from impact) with carrier strap, magnetic holder and probe holder (Part no. 0516 0401)
- SoftCase for attachable printer (protects printer from dirt/impact) (Part no. 0516 0411)
- System case (aluminium) for measuring instrument, probes and accessories (Part no. 0516 0410)

We recommend:

DKD calibration certificate/Temperature 0520 0201
El. resistance thermometer, el. thermometer; cal. points selectable from -80 to +1000°C

Recommended Set

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

The Pro Set for clean room systems

- testo 400, multi-function measuring instrument, incl. battery, Li cell and calibration protocol (Part no. 0563 4001)
- 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)
- Precision air probe (Part no. 0628 0017)
- Highly accurate reference humidity/temp. probe incl. cal. cert. (Part no. 0636 9741)
- Cable, 1.5 m long, connects probe with plug-in head to meas. instrument (Part no. 0430 0143)
- Cable, 1.5 m long, connects probe with plug-in head to meas. instrument (Part no. 0430 0143)
- Quick-action hot wire probe, Ø 10 mm, with telescopic handle, for measurements in the lower velocity range with direction recognition (Part no. 0635 1041)
- Bendable vane probe (can be bent by 90°), Ø 100 mm, attachable to handle or telescopic handle, for measurements on ventilation outlets (Part no. 0635 9340)
- Professional telescopic handle for plug-in vane probes, max. 1 m long, extension on request (Part no. 0430 0941)
- Current/voltage cable (±1 V, ±10 V, 20 mA) (Part no. 0554 0007)
- System case (aluminium) for measuring instrument, probes and accessories (Part no. 0516 0410)
- ComSoft 3 - Professional with data management (Part no. 0554 0830)
- RS232 cable (Part no. 0409 0178)

We recommend:

DKD calibration certificates for temperature, humidity, velocity, pressure (See Calibration)	

Recommended Set

Laborartory fume cupboard probe

- 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	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 — Accessories and Calibration Certificates

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 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) 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

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/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	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

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)

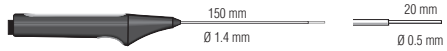
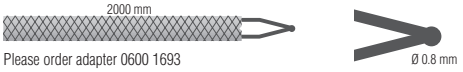
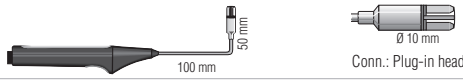
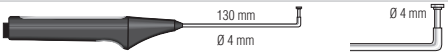
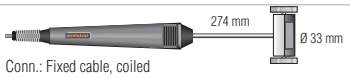
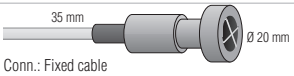
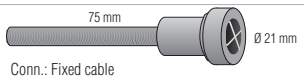
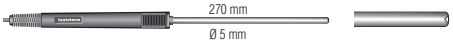
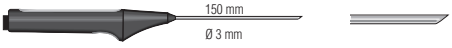
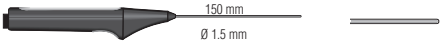
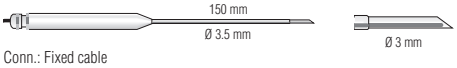
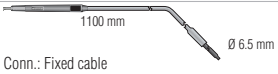
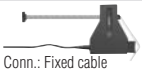
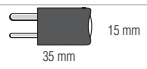
Probe type	CO2 probe	CO probe	Mechanical	Current/voltage measurement	Current/voltage measurement
Meas. range	0 to +1 Vol. % CO_2 0 to +10000 ppm CO_2	0 to +500 ppm CO	+20 to +20000 rpm	0 to +20 mA (0554 0007) 0/4 to 20 mA (0554 0528)	0 to +10 V
Accuracy ±1 digit	See probe data	±5% of mv (0 to +500 ppm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

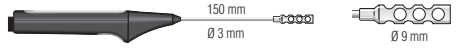
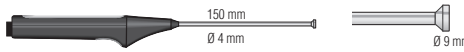
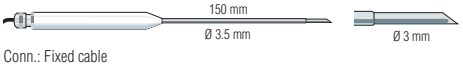
testo 400

Suitable probes at a glance

Probes Type K (NiCr-Ni)	Illustration	Meas. range	Accuracy	t_{99}	Part no.
Super quick-action immersion/penetration probe for measurements in gases and liquids with a low-mass tip	 Conn.: Plug-in head. connection cable 0430 0143 or 0430 0145 required	-200 to +600 °C	Class 1	1 s	0604 9794 0614 9794 *
Thermocouple, made of fibre-glass insulated thermal pipes, pack of 5	 Please order adapter 0600 1693	-200 to +400 °C	Class 1 Insulation: twin conductor, flat, oval, opposed and covered with fibre-glass, both conductors are wrapped together with fibre-glass and soaked with lacquer, please order adapter 0600 1693	5 s	0644 1109
Quick-action surface probe with sprung thermocouple strip, measuring range short-term to +500°C	 Conn.: Plug-in head. connection cable 0430 0143 or 0430 0145 required	-200 to +300 °C	Class 2	3 s	0604 0194 0614 0194 *
Super quick-action surface probe, probe tip at 90° angle, with sprung thermocouple strip	 Conn.: Plug-in head. connection cable 0430 0143 or 0430 0145 required	-200 to +300 °C	Class 2	3 s	0604 0994
Robust surface probe	 Conn.: Plug-in head. connection cable 0430 0143 or 0430 0145 required	-200 to +600 °C	Class 1	25 s	0604 9993 *0614 9993* *
Robust surface probe, at 90° angle, suitable for inaccessible places	 Conn.: Plug-in head. connection cable 0430 0143 or 0430 0145 required	-200 to +600 °C	Class 1	25 s	0604 9893 *0614 9893* *
Robust surface probe with sprung thermocouple strip for high temperature range up to +700°C	 Conn.: Fixed cable, coiled	-200 to +700 °C	Class 2	3 s	0600 0394
Roller surface probe for measurements on rollers and rotating drums, max. circumferential velocity 18 to 400m/min	 Conn.: Fixed cable, coiled	-50 to +240 °C	Class 2		0600 5093
Magnetic probe, adhesive power approx. 20 N, with magnets, for measurements on metal surfaces	 Conn.: Fixed cable	-50 to +170 °C	Class 2		0600 4793
Magnetic probe, adhesive power approx. 10 N, with magnets, for higher temperatures, measures on metal surfaces	 Conn.: Fixed cable	-50 to +400 °C	Class 2		0600 4893
Miniature surface probe for measurements on electronic components, small motors...	 Conn.: Fixed cable	-200 to +400 °C	Class 2	3 s	0600 1494
Adhesive thermocouple, pack of 2, carrier material: aluminium foil Is fixed at the measuring point using conventional adhesives or silicone heat paste 0554 0004		-200 to +200 °C	Class 1		0644 1607
Fast response immersion/penetration probe	 Conn.: Plug-in head. connection cable 0430 0143 or 0430 0145 required	-200 to +400 °C	Class 1	3 s	0604 0293 *0614 0293* *
Super quick-action immersion/penetration probe for measurements in liquids	 Conn.: Plug-in head. connection cable 0430 0143 or 0430 0145 required	-200 to +600 °C	Class 1	1 s	0604 0493 *0614 0493* *
Super quick-action immersion/penetration probe for high temperatures	 Conn.: Plug-in head. connection cable 0430 0143 or 0430 0145 required	-200 to +1100 °C	Class 1	1 s	0604 0593 *0614 0593* *
Super quick-action immersion/penetration probe for measurements in gases and liquids with a low-mass tip	 Conn.: Plug-in head. connection cable 0430 0143 or 0430 0145 required	-200 to +600 °C	Class 1	1 s	0604 9794 *0614 9794* *
Robust immersion/penetration probe made of V4A stainless steel, waterproof and oven-proof, e.g. for the food sector	 Conn.: Fixed cable	-200 to +400 °C	Class 1	3 s	0600 2593
Smelting probe for measurements in non-ferrous melting baths, with exchangeable measuring tips	 Conn.: Fixed cable	-200 to +1250 °C	Class 1	60 s	0600 5993
Pipe wrap probe for pipes with up to 2" diameter	 Conn.: Fixed cable	-60 to +130 °C	Class 2	5 s	0600 4593
Spare meas. head for pipe wrap probe		-60 to +130 °C	Class 2	5 s	0602 0092

**with EEPROM: Precision adjustment for each probe at a measuring point; measuring range limits are saved in probe; t95 extrapolation; surface allowance in surface probe can be adapted to measuring task*

Probes Type K (NiCr-Ni)	Illustration	Meas. range	Accuracy	t_{99}	Part no.
Plug-in measuring tip, 750mm long, flexible, for high temperatures, outer casing: stainless steel 1.4541	 Please order handle with Part no. 0600 5593	-200 to +900 °C	Class 1	4 s	0600 5393
Plug-in measuring tip, 1200 mm long, flexible, for high temperatures, outer casing: stainless steel 1.4541	 Please order handle with Part no. 0600 5593	-200 to +900 °C	Class 1	4 s	0600 5493
Plug-in measuring tip, 550mm long, flexible, for high temperatures, outer casing: Inconel 2.4816	 Please order handle with Part no. 0600 5593	-200 to +1100 °C	Class 1	4 s	0600 5793
Plug-in measuring tip, 1030mm long, flexible, for high temperatures, outer casing: Inconel 2.4816	 Please order handle with Part no. 0600 5593	-200 to +1100 °C	Class 1	4 s	0600 5893

Probes Pt100	Illustration	Meas. range	Accuracy	t_{99}	Part no.
Standard air probe	 Conn.: Plug-in head. connection cable 0430 0143 or 0430 0145 required	-200... +600 °C	Class A	75 s	0604 9773
Precision air probe	 Conn.: Plug-in head. connection cable 0430 0143 or 0430 0145 required	-100 to +400 °C	1/10 Class B (0 to 100°C) 1/5 Class B (rem. range) to EN 60751	75 s	0628 0017
Robust surface probe	 Conn.: Plug-in head. connection cable 0430 0143 or 0430 0145 required	-50 to +400 °C	Class B	40 s	0604 9973 *0628 0018* *
Velcro probe for pipes with diameter of max. 75 mm	 Conn.: Fixed cable	-50 to +150 °C	Class B	40 s	0628 0019
Standard immersion/penetration probe	 Conn.: Plug-in head. connection cable 0430 0143 or 0430 0145 required	-200 to +400 °C	Class A	20 s	0604 0273
Standard immersion/penetration probe	 Conn.: Plug-in head. connection cable 0430 0143 or 0430 0145 required	-200 to +600 °C	Class A	20 s	0604 0274
Highly accurate immersion/penetration probe incl. certificate	 Conn.: Plug-in head. connection cable 0430 0143 or 0430 0145 required	-40 to +300 °C	±0.05 °C (+0.01 to +100 °C) ±(0.05 °C ±0.05% of mv) (-40 to 0 °C) ±(0.05 °C ±0.05% of mv) (+100.01 to +300 °C)	60 s	0614 0240
Highly accurate immersion/penetration probe	 Conn.: Plug-in head. connection cable 0430 0143 or 0430 0145 required	-100 to +400 °C	1/10 Class B (0 to 100°C) 1/5 Class B (rem. range) to EN 60751	30 s	0628 0015
Flexible precision immersion probe, cable heat-proof up to +300°C	 Conn.: Plug-in head. connection cable 0430 0143 or 0430 0145 required	-100 to +265 °C	1/10 Class B (0 to 100°C) 1/5 Class B (rem. range) to EN 60751	80 s	0628 0016
Robust immersion/penetration probe with sharpened measuring tip, waterproof and oven-proof	 Conn.: Fixed cable	-200 to +400 °C	Class A	30 s	0604 2573

**with EEPROM: Precision adjustment for each probe at a measuring point; measuring range limits are saved in probe; t95 extrapolation; surface allowance in surface probe can be adapted to measuring task*

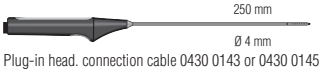
Probes NTC	Illustration	Meas. range	Accuracy	t_{99}	Part no.
Highly accurate air probe for air and gas temperature measurements with bare, mechanically protected sensor	 Conn.: Fixed cable	-40 to +130 °C	To UNI curve	60 s	0610 9714
Globe thermometer to measure radiant heat	 Conn.: Fixed cable	0 to +120 °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

testo 400 — Suitable probes at a glance

More probes	Illustration	Meas. range	Accuracy	Part no.
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
Mechanical rpm probe with plug-in head Included 2 probe tips Ø 8 and Ø 12 mm 1 hollow cone Ø 8 mm 1 surface speed disc Ø 19 mm to measure rotational speed: rpm = rotational speed in mm/s	 Conn.: Plug-in head. connection cable 0430 0143 or 0430 0145 required	20 to 20000 rpm	±1 digit	0640 0340
Current/voltage cable (±1 V, ±10 V, 20 mA)		0 to +1000 mV 0 to +10 V 0 to +20 mA	±1 mV (0 to +1000 mV) ±0.01 V (0 to +10 V) ±0.04 mA (0 to +20 mA)	0554 0007
4 to 20 mA interface for connection and intermittent power supply to transmitters (scaling via hand-held instrument), in robust metal housing with impact protection, incl. magnet for fast attachment	 Conn.: Plug-in head. connection cable 0430 0143 or 0430 0145 required	0/4 to 20 mA	±0.04 mA	0554 0528

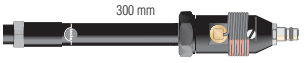
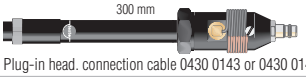
Accessories	Part no.
Cable, 1.5 m long, connects probe with plug-in head to meas. instrument, PUR coating material	0430 0143
Cable, 5 m long, connects probe with plug-in head to measuring instrument, PUR coating material	0430 0145
Extension cable, 5 m long, between plug-in head cable and instrument , PUR coating material	0409 0063
Telescopic handle, max. 1 m, for probe with plug-in head, Cable: 2.5 m long, PUR coating material	0430 0144
Glass shaft for immersion/penetration probe to protect from corrosive agents For probes with Part nos. 0604 0273 and 0628 0015	0554 7072
Adapter to connect NiCr-Ni thermocouples and probes with open wire ends	0600 1693
Handle for plug-in measuring tip	0600 5593
Silicone heat paste (14g), Tmax = +260°C, Improves heat transfer in surface probes	0554 0004
Spare measuring tip for smelting probe	0363 1712

More probes

Humidity probes	Illustration	Meas. range	Accuracy		t_{99}	Part no.
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	±2 %RH (+2 to +98 %RH)	±0.4 °C (-10 to +50 °C) ±0.5 °C (remaining range)	12 s	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	±2 %RH (+2 to +98 %RH)	±0.4 °C (-10 to +50 °C) ±0.5 °C (remaining range)	12 s	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	±2 %RH (+2 to +98 %RH)	±0.4 °C (-10 to +50 °C) ±0.5 °C (-20 to -10.1 °C) ±0.5 °C (+50.1 to +70 °C)	15 s	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	±1 %RH (+10 to +90 %RH) ±2 %RH (remaining range)	* ±0.4 °C (-10 to +50 °C) ±0.5 °C (remaining range)	12 s	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	±2 %RH (+2... +98 %RH)	±0.4 °C (+0.1 to +50 °C) ±0.5 °C (-20 to 0 °C) ±0.5 °C (+50.1 to +70 °C)	12 s	0636 9742

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

Suitable probes at a glance

Probes Process humidity	Illustration	Meas. range	Accuracy		t_{99}	Part no.
Standard pressure dew point probe for measurements in compressed air systems	 Plug-in head. connection cable 0430 0143 or 0430 0145 required	0 to +100 %RH -30 to +50 °C tpd		±0.9 °C tpd (+0.1 to +50 °C tpd) ±1 °C tpd (-4.9 to 0 °C tpd) ±2 °C tpd (-9.9 to -5 °C tpd) ±3 °C tpd (-19.9 to -10 °C tpd) ±4 °C tpd (-30 to -20 °C tpd)	300 s	0636 9840
Precision pressure dew point probe for measurements in compressed air systems incl. cert. with test point -40°C tpd	 Plug-in head. connection cable 0430 0143 or 0430 0145 required	0 to +100 %RH -60 to +50 °C tpd		±0.8 °C tpd (-4.9 to +50 °C tpd) ±1 °C tpd (-9.9 to -5 °C tpd) ±2 °C tpd (-19.9 to -10 °C tpd) ±3 °C tpd (-29.9 to -20 °C tpd) ±4 °C tpd (-40 to -30 °C tpd)	300 s	0636 9841
High humidity level probe w/ heated sensor element, no humidity on sensor	 Plug-in head. connection cable 0430 0143 or 0430 0145 required	0 to +100 %RH -20 to +85 °C	±2.5 %RH (0 to +100 %RH)	±0.4 °C (-10 to +50 °C) ±0.5 °C (-20 to -10.1 °C) ±0.5 °C (+50.1 to +85 °C)	30 s	0636 2142
Robust high temperature/humidity probe up to +180°C	 Plug-in head. connection cable 0430 0143 or 0430 0145 required	0 to +100 %RH -20 to +180 °C	±2 %RH (+2 to +98 %RH)	±0.4 °C (+0.1 to +50 °C) ±0.5 °C (remaining range)	30 s	0628 0021
Flexible humidity probe (does not retain shape) for measurements in inaccessible places	 Plug-in head. connection cable 0430 0143 or 0430 0145 required	0 to +100 %RH -20 to +180 °C	±2 %RH (+2 to +98 %RH)	±0.4 °C (+0.1 to +50 °C) ±0.5 °C (-20 to 0 °C) ±0.5 °C (+50.1 to +180 °C)	30 s	0628 0022

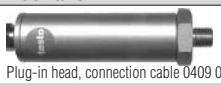
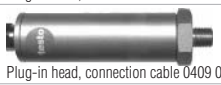
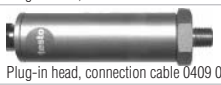
Probes Material and equilibrium moisture	Illustration	Meas. range	Accuracy		t_{99}	Part no.
Flexible humidity probe with mini module for meas. e.g. on material testing rigs, module cable length 1500mm, probe tip 50x19x7mm	 Plug-in head. connection cable 0430 0143 or 0430 0145 required	0 to +100 %RH -20 to +125 °C	±2 %RH (+2 to +98 %RH)	±0.4 °C (-10 to +50 °C) ±0.5 °C (remaining range)	20 s	0628 0013
Sword probe for measuring humidity and temperature in stacked material	 Plug-in head. connection cable 0430 0143 or 0430 0145 required	0 to +100 %RH -20 to +70 °C	±2 %RH (+2 to +98 %RH)	±0.4 °C (-10 to +50 °C) ±0.5 °C (-20 to -10.1 °C) ±0.5 °C (+50.1 to +70 °C)	12 s	0636 0340
Robust humidity probe e.g. for measuring equilibrium moisture or for measurements in exhaust ducts to +120°C	 Plug-in head. connection cable 0430 0143 or 0430 0145 required	0 to +100 %RH -20 to +120 °C	±2 %RH (+2 to +98 %RH)	±0.4 °C (-10 to +50 °C) ±0.5 °C (remaining range)	30 s	0636 2140
Material moisture probe				Free scaling, reference measurement, no water level		0636 0365
Material/building moisture cable		0 to 100 k Ohm = 100 to 0 %		Display values in instrument display mean: 100 to 66 wet; 0 to 1 very dry		0636 0565

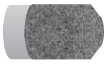
Probes aw value	Illustration	Meas. range	Accuracy		t_{99}	Part no.
aw value set: pressure-tight precision humidity probe with certificate, measurement chamber and 5 sample bowls (plastic)	 Reproducibility of aw value ±0.003	0 to +1 aW 0 to +100 %RH -20 to +70 °C	±0.01 aW (+0.1 to +0.9 aW) ±0.02 aW (+0.9 to +1 aW)	±0.4 °C (-10 to +50 °C) ±0.5 °C (remaining range)		0628 0024

Differential pressure probes	Illustration	Meas. range	Accuracy	Part no.
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
Pressure probe, 10 hPa, 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 +10 hPa	±0.03 hPa	0638 1447
Pressure probe, 100 hPa, 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 hPa	±0.5% of mv (+20 to +100 hPa) ±0.1 hPa (0 to +20 hPa)	0638 1547
Pressure probe, 1000 hPa, measures differential pressure, in robust metal housing with impact protection, incl. quick-closing coupling (M8 x 0.5), magnet for fast attachment	 Plug-in head. connection cable 0430 0143 or 0430 0145 required	0 to +1000 hPa	±1 hPa (0 to 200 hPa) ±0.5% of mv (200 to 1000 hPa)	0638 1647
Pressure probe, 2000 hPa, measures differential pressure, in robust metal housing with impact protection, incl. quick-closing coupling (M8 x 0.5), magnet for fast attachment	 Plug-in head. connection cable 0430 0143 or 0430 0145 required	0 to +2000 hPa	±2 hPa (0 to 400 hPa) ±0.5% of mv (400 to 2000 hPa)	0638 1747
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	 Plug-in head. connection cable 0430 0143 or 0430 0145 required	0 to +2000 hPa	±5 hPa (0 to +2000 hPa)	0638 1847

testo 400

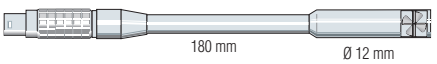
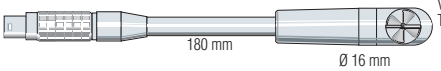
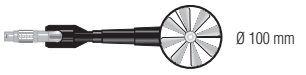
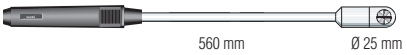
Suitable probes at a glance

Relative pressure probes	Illustration	Meas. range	Accuracy		Part no.
Low pressure probe, refrigerant-proof stainless steel, up to 10 bar	 Plug-in head, connection cable 0409 0202 required	-1 to +10 bar	±1% of fsv Overload 25 bar	Screw-in thread 7/16" UNF	0638 1741
High pressure probe, refrigerant-proof stainless steel, up to 30 bar	 Plug-in head, connection cable 0409 0202 required	-1 to +30 bar	±1% of fsv Overload 120 bar	Screw-in thread 7/16" UNF	0638 1841
High press. probe, refrigerant-proof st. steel, up to 40 bar	 Plug-in head, connection cable 0409 0202 required	-1 to +40 bar	±1% of fsv Overload 120 bar	Screw-in thread 7/16" UNF	0638 1941
High pressure probe, refrigerant-proof stainless steel, up to 100 bar	 Plug-in head, connection cable 0409 0202 required	-1 to +100 bar	±1% of fsv Overload 250 bar	Screw-in thread 7/16" UNF	0638 2041
High pressure probe, refrigerant-proof stainless steel, up to 400 bar	 Plug-in head, connection cable 0409 0202 required	-1 to +400 bar	±1% of fsv Overload 600 bar	Screw-in thread 7/16" UNF	0638 2141

Caps for humidity probes Ø 12m and 21mm	Illustration			Part no.
Metal protection cage, Ø 21 mm for humidity probes, material: stainless steel V4A. Quick adjustment time, robust and temperature-proof. Used when measuring velocities of less than 10 m/s		Ø 21 mm	All humidity probes with Ø 21 mm	0554 0665
Metal protection cage, Ø 12 mm for humidity probes, material: stainless steel V4A. Quick adjustment time, robust and temperature-proof. Used when measuring velocities of less than 10 m/s.		Ø 12 mm	0636 9740, 0636 9715	0554 0755
Wire mesh filter, Ø 21 mm, insertable filter for metal protection cage and plastic cap. Material: stainless steel V4A, quick adjustment time, protects from dirt and damage. Applications: meteorology, splashwater, condensation.		Ø 21 mm	All humidity probes with Ø 21 mm	0554 0667
Cap with wire mesh filter, Ø 12 mm			All humidity probes with Ø 12 mm	0554 0757
Teflon sintered filter, Ø 21 mm, PTFE. Not affected by condensation, water-repellent, resistant to corrosive substances. Applications: compressed air measurements, high humidity range (continuous measurements), high velocities		Ø 21 mm	All humidity probes with Ø 21 mm	0554 0666
Teflon sintered filter, Ø 12 mm, PTFE. Not affected by condensation, water-repellent, resistant to corrosive substances. Applications: compressed air measurements, high humidity range (continuous measurements), high velocities		Ø 12 mm	0636 9769, 0636 9740, 0636 9715	0554 0756
Teflon sintered filter, Ø 12 mm, PTFE. Not affected by condensation, water-repellent, resistant to corrosive substances. Applications: compressed air measurements, high humidity range (continuous measurements), high velocities		Ø 12 mm	0628 0021, 0628 0022, 0636 2140, 0636 2142	0554 0758
Teflon sintered filter, Ø 12 mm, PTFE. Not affected by condensation, water-repellent, resistant to corrosive substances. Applications: compressed air measurements, high humidity range (continuous measurements), high velocities		Ø 21 mm	All humidity probes Ø 21 mm	0554 0640
Stainless steel sintered cap, Ø 12mm, made of stainless steel V2A. Highly robust, suitable for penetration, should be cleaned with compressed air, mechanical protection of sensor. Applications: high mechanical loads, high velocity speeds.		Ø 12 mm	0636 9740, 0636 9715	0554 0647
Teflon cap, Ø 5 mm, attachable, PTFE material, (5 off). Applications: dust protection, high humidity level measurements, high velocities		Ø 5 mm	0636 2130	0554 1031

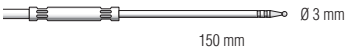
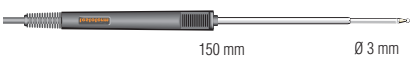
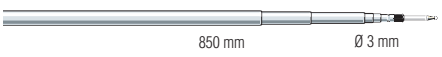
Accessories: Humidity probes	Part no.
Cable, 1.5 m long, connects probe with plug-in head to meas. instrument PUR coating material	0430 0143
Cable, 5 m long, connects probe with plug-in head to measuring instrument PUR coating material	0430 0145
Extension cable, 5 m long, between plug-in head cable and instrument PUR coating material	0409 0063
Telescopic handle, max. 1 m, for probe with plug-in head Cable: 2.5 m long, PUR coating material	0430 0144
Telescopic handle, 340 - 800mm long	0430 9715
Adapter for surface humidity measuring, for humidity probes Ø 12mm Locates damp spots on walls, for example	0628 0012
Cap for bore holes, for humidity probe Ø 12 mm Measures equilibrium moisture in bore holes	0554 2140
Control and humidity adjustment set 11.3%RH/75.3%RH incl. adapter for humidity probes	0554 0660
Control and storage humidity (33%RH) for humidity probes	0554 0636

Accessories: Pressure probes	Part no.
Connection cable, 2.5 m long, for pressure probes 0638 1741/1841/1941	0409 0202
Adapter for pressure probes, 1/2" outer thread, 1/4" inner thread for pressure probes 0638 1741/1841/1941/2041/2141	0699 3127
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
Connection hose, silicone, 5m long Max. load 700 hPa (mbar)	0554 0440
Connection hose set, 2 x 1 m, coiled, incl. 1/8" screw connection Pressure-tight up to 20 bar, for probe 0638 1647/1747/1847	0554 0441

Vane probes	Illustration	Probe type	Meas. range	Accuracy	Part no.
Vane probe, Ø 12 mm, can be attached to handle or telescopic handle		Vane	+0.6 to +20 m/s Oper. temp. -30 to +140 °C	±(0.2 m/s ±1% of mv) (+0.6 to +20 m/s)	0635 9443
Vane/temperature probe, Ø 16 mm, attachable to handle or telescopic handle		Vane Type K (NiCr-Ni)	+0.4 to +60 m/s -30 to +140 °C	±(0.2 m/s ±1% of mv) (+0.4 to +60 m/s)	0635 9540
Vane/temperature probe, Ø 25 mm, can be attached to handle or telescopic handle		Vane Type K (NiCr-Ni)	+0.4 to +40 m/s -30 to +140 °C	±(0.2 m/s ±1% of mv) (+0.4 to +40 m/s)	0635 9640
Bendable vane probe (can be bent by 90°), Ø 60 mm, attachable to handle or telescopic handle, for measurements on ventilation outlets		Vane	+0.25 to +20 m/s Oper. temp. 0 to +60 °C	±(0.1 m/s ±1.5% of mv) (+0.25 to +20 m/s)	0635 9440
Bendable vane probe (can be bent by 90°), Ø 100 mm, attachable to handle or telescopic handle, for measurements on ventilation outlets		Vane	+0.1 to +15 m/s Oper. temp. 0 to +60 °C	±(0.1 m/s ±1.5% of mv) (+0.1 to +15 m/s)	0635 9340
Vane probe, Ø 16 mm, for stationary assembly, 3 m cable (PVC)			+0.4 to +60 m/s Oper. temp. 0 to +70 °C	±(0.2 m/s ±1% of mv) (+0.4 to +60 m/s)	0628 0036
High temperature vane probe, Ø 25 mm, with handle for continuous measurements up to +350°C		Vane Type K (NiCr-Ni)	+0.6 to +20 m/s -40 to +350 °C	±(0.3 m/s ±1% of fsv) (+0.6 to +20 m/s)	0635 6045

Accessories: Vane probes	Part no.
Professional telescopic handle for plug-in vane probes, max. 1 m long, extension on request	0430 0941
Extension for telescopic handle, 2 m long Please also order the 0409 0063 extension cable	0430 0942
Handle for plug-in vane probes	0430 3545

Accessories: Vane probes	Part no.
Swan neck, flexible connection between probe and connection part	0430 0001
Magnetic probe holder for vane probes	0554 0430

Thermal probes	Illustration	Probe type	Meas. range	Accuracy	Part no.
Robust hot bulb probe, Ø 3 mm, for measurements in the lower velocity range, 2m cable (PVC)		Hot bulb NTC	0 to +10 m/s -20 to +70 °C	±(0.03 m/s ±5% of mv) (0 to +10 m/s)	0628 0035
Affordable, robust hot bulb probe, Ø 3 mm, for measurements in the lower velocity range, with handle		Hot bulb NTC	0 to +10 m/s -20 to +70 °C	±(0.03 m/s ±5% of mv) (0 to +10 m/s)	0635 1549
Robust hot bulb probe, Ø 3 mm, with handle and telescopic handle for measurements in the lower velocity range		Hot bulb NTC	0 to +10 m/s -20 to +70 °C	±(0.03 m/s ±5% of mv) (0 to +10 m/s)	0635 1049
Quick-action hot wire probe, Ø 10 mm, with telescopic handle, for measurements in the lower velocity range with direction recognition		Hot wire NTC	0 to +20 m/s -20 to +70 °C	±(0.03 m/s ±4% of mv) (0 to +20 m/s)	0635 1041
Thermal anemometer, Ø 10 mm, w. telescopic handle, measures air flow in lab fume cupboards to DIN EN 14175 (draft)		Hot wire NTC	0 to +5 m/s 0 to +50 °C	±(0.02 m/s ±5% of mv) (0 to +5 m/s)	0635 1047

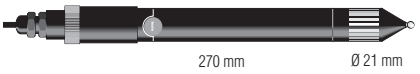
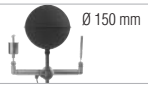
Differential pressure probes	Illustration	Probe type	Meas. range	Accuracy	Part no.
Precision pressure probe, 100 Pa, in robust metal housing with impact protection, incl. magnet for fast attachment, to measure differential pressure and velocity speeds (in connection with Pitot tube)		Differential pressure probe	0 to +100 Pa	±(0.3 Pa ±0.5% of mv)	0638 1347
Pressure probe, 10 hPa, in robust metal housing with impact protection incl. magnet for fast attachment, to measure differential pressure and velocity speeds (in connection with Pitot tube)		Differential pressure probe	0 to +10 hPa	±0.03 hPa	0638 1447
Pressure probe, 100 hPa, in robust metal housing with impact protection, incl. magnet for fast attachment, to measure differential pressure and velocity speeds (in connection with Pitot tube)		Differential pressure probe	0 to +100 hPa	±0.5% of mv (+20 to +100 hPa) ±0.1 hPa (0 to +20 hPa)	0638 1547

testo 400 — Suitable probes at a glance

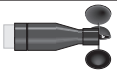
Prandtl's Pitot tubes	Illustration	Accuracy	Part no.
Pitot tube, 300 mm long, stainless steel, measures flow velocity when used with pressure probes 0638 1345/..1445/..1545		Oper. temp. 0 to +600 °C	0635 2245
Pitot tube, 350 mm long, stainless steel, measures flow velocity when used with pressure probes 0638 1345/..1445/..1545		Oper. temp. 0 to +600 °C	0635 2145
Pitot tube, 500 mm long, stainless steel, measures flow velocity when used with pressure probes 0638 1345/..1445/..1545		Oper. temp. 0 to +600 °C	0635 2045
Pitot tube, 1000 mm long, stainless steel, measures flow velocity when used with pressure probes 0638 1345/..1445/..1545		Oper. temp. 0 to +600 °C	0635 2345

Straight Pitot tubes	Illustration	Probe type	Meas. range	Part no.
Pitot tube, stainless steel, 360 mm long, measures velocity with temperature, for pressure probes 0638 1345/..1445/..1545		Type K (NiCr-Ni)	-40 to +600 °C	0635 2040
Pitot tube, stainless steel, 500 mm long, measures velocity with temperature, for pressure probes 0638 1345/..1445/..1545		Type K (NiCr-Ni)	-40 to +600 °C	0635 2140
Pitot tube, stainless steel, 1000 mm long, measures velocity with temperature, for pressure probes 0638 1345/..1445/..1545		Type K (NiCr-Ni)	-40 to +600 °C	0635 2240

Accessories: Pressure probes	Part no.
Connection hose, silicone, 5m long Max. load 700 hPa (mbar)	0554 0440
Cable, 1.5 m long, connects probe with plug-in head to meas. instrument PUR coating material	0430 0143

Comfort level measurement	Illustration	Probe type	Meas. range	Accuracy	Part no.
3-function probe for simultaneous measurement of temperature, humidity and velocity. With plug-in head, 0430 0143 connection cable required		Hot bulb Testo humid. sensor, cap. NTC	0 to +10 m/s 0 to +100 %RH -20 to +70 °C	±(0.03 m/s ±5% of mv)(0 to 10 m/s) ±2 %RH (+2 to +98 %RH) ±0.4 °C (0 to +50 °C) ±0.5 °C (remaining range)	0635 1540
Comfort level probe for measuring degree of turbulence, with telescopic handle and stand. Fulfills DIN 1946 Part 2 or EN 12 599 requirements		Hot wire NTC	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			0 to +120 °C	In accordance with ISO 7243 or DIN 33403	0635 8888 ID No. 0699 4239/1

Accessories: 3-Function probe	Part no.
Adapter for humidity adjustment of 3-function probe 0635 1540 Order with adjustment set	0554 0661
Cable, 1.5 m long, connects probe with plug-in head to meas. instrument PUR coating material	0430 0143

Other features	Illustration	Probe type	Meas. range	Accuracy	Part no.
Shell anemometer, 3 m cable, for meteorological wind measurement		Vane	+0.7 to +30 m/s	±(0.3 m/s ±5% of mv) (+0.7 to +30 m/s)	0635 9045

From measuring instrument to measurement system, testo 454

The modular system – testo 454

Now you can measure many different parameters in one or many locations simultaneously using one portable system.

testo 454 is a compact, portable measuring instrument and can be upgraded to a modular measuring system with more than 200 measurement channels.

The control unit

The control unit is a robust hand-held instrument for measuring temperature, humidity, pressure, velocity, CO2, rpm, current and voltage.

User-friendly

Our easily read graphics display allows simultaneous tracking of 6 parameters, simple menu driven operation and 4 user defined function buttons. Touch pen operation is available as an option.

User defined probe sockets

4 additional, user defined probe sockets can be added to the control unit with each attachable logger. Giving you the proper number of probes for your application.

Simultaneous measurement at several locations

Simultaneous measurement of data at several locations is carried out by “slave” loggers. Measured data is transmitted via the Testo data bus. The control unit is able to control the entire measuring system.

Data output - every option

Measured data may be printed on site with the built-in printer. The measured data may also be analysed, documented and stored on your PC. Readings are output as a current signal (4-20 mA) through the analog output box for process control or output on an analog recorder.

Built-in printer documents readings on site

Control unit

4 user-defined function buttons

Data communication by PC Barcode reader

Testo databus

User-defined probe socket

Built-in differential pressure probe (80/200hPa)

Recommended set

Portable measuring instrument

- Control unit displays measurement data and controls the measuring system, incl. built-in printer, pressure measurement 80/200 hPa, 1 user defined probe socket, programmable measurements and memory space for 250,000 readings, connection for Testo data bus, incl. terminal plug (Part no. 0563 0353)
- Touch screen with pen (available only with original order) (Part no. 0440 0559)
- Testo rechargeable battery pack NiMH for control unit, logger (Part no. 0515 0097)
- Power unit 230 V/ 8 V/ 1 A, for instrument (European plug) (Part no. 0554 1084)
- Logger, measures and saves (max. 250,000 readings), incl. 4 user defined probe sockets, alarm output/event trigger socket, stand/wall holder (Part no. 0577 4540)
- Testo rechargeable battery pack NiMH for control unit, logger (Part no. 0515 0097)
- ComSoft 3 for data management, incl. RS 232 connection cable (Part no. 0554 0841)

Control unit displays measurement data and controls the measuring system, incl. built-in printer, pressure measurement 80/200 hPa, 1 user defined probe socket, programmable measurements and memory space for 250,000 readings, connection for Testo data bus, incl. terminal plug

Part no.
0563 0353

Probes and accessories of your choice

We recommend:	
DKD calibration certificates for temp., humidity, velocity, pressure (See calibration services)	
Connection cable, 2 m, for Testo data bus	0449 0042

Example of probe selection:	
Standard air probe	0604 9773
Quick-action surface probe	0604 0194
Standard ambient air probe up to +70°C	0636 9740
Globe thermometer to measure radiant heat	0554 0670
Comfort level probe	0628 0009
Ambient CO2 probe	0632 1240
Cable, 1.5 m long, connects probe with plug-in head to meas. instrument	0430 0143

testo 454 | From measuring instrument to measurement system, testo 454

Recommended Set

Data logging at several sites

- Control unit displays measurement data and controls the measuring system, incl. built-in printer, pressure measurement 80/200 hPa, 1 user defined probe socket, programmable measurements and memory space for 250,000 readings, connection for Testo data bus, incl. terminal plug (Part no. 0563 0353)
- Touch screen with pen (available only with original order) (Part no. 0440 0559)
- Testo rechargeable battery pack NiMH for control unit, logger (Part no. 0515 0097)
- Connection cable, 2 m, for Testo data bus (Part no. 0449 0042)
- Logger, measures and saves (max. 250,000 readings), incl. 4 user defined probe sockets, alarm output/event trigger socket, stand/wall holder (Part no. 0577 4540)
- Connection cable, 5 m, for Testo data bus (Part no. 0449 0043)
- Logger, measures and saves (max. 250,000 readings), incl. 4 user defined probe sockets, alarm output/event trigger socket, stand/wall holder (Part no. 0577 4540)
- Power box, connected to control unit to increase field operating life and supply power to Testo data bus (Part no. 0554 1045)
- Power unit for compact gas drier and flue gas analyser (Part no. 0554 1143)
- ComSoft 3 for data management, incl. RS 232 connection cable (Part no. 0554 0841)

Probes and accessories of your choice

We recommend:

DKD calibration certificates for temp., humidity, velocity, pressure
(See calibration services)

Recommended Set

Data measurement at several sites using the laptop/PC

- Testo PCMCIA plug-in card incl. Comsoft 3 software, cable for Testo data bus, adapter and terminal plug (Part no. 0554 0590)
- Logger, measures and saves (max. 250,000 readings), incl. 4 user defined probe sockets, alarm output/event trigger socket, stand/wall holder (Part no. 0577 4540)
- Power unit 230 V/ 8 V/ 1 A, for instrument (European plug) (Part no. 0554 1084)
- Logger, measures and saves (max. 250,000 readings), incl. 4 user defined probe sockets, alarm output/event trigger socket, stand/wall holder (Part no. 0577 4540)
- Power unit 230 V/ 8 V/ 1 A, for instrument (European plug) (Part no. 0554 1084)
- Logger, measures and saves (max. 250,000 readings), incl. 4 user defined probe sockets, alarm output/event trigger socket, stand/wall holder (Part no. 0577 4540)
- Power unit 230 V/ 8 V/ 1 A, for instrument (European plug) (Part no. 0554 1084)
- Connection cable, 2 m, for Testo data bus (Part no. 0449 0042)
- Connection cable, 5 m, for Testo data bus (Part no. 0449 0043)
- Connection cable, 20 m, for Testo data bus (Part no. 0449 0044)
- Power box, connected to control unit to increase field operating life and supply power to Testo data bus (Part no. 0554 1045)
- Power unit for compact gas drier and flue gas analyser (Part no. 0554 1143)

Probes and accessories of your choice

We recommend:

DKD calibration certificates for temp., humidity, velocity, pressure
(See calibration services)

Ordering data: Measurement system/Accessories	Part no.
Control Unit + Logger	
Control unit displays measurement data and controls the measuring system, incl. built-in printer, pressure measurement 80/200 hPa, 1 user defined probe socket, programmable measurements and memory space for 250,000 readings, connection for Testo data bus, incl. terminal plug	0563 0353
Touch screen with pen (available only with original order) For easy input of text and values	0440 0559
Logger, measures and saves (max. 250,000 readings), incl. 4 user defined probe sockets, alarm output/event trigger socket, stand/wall holder	0577 4540
Alarm/trigger cable	0554 0012
Recharger for control unit or logger (with 4 standard rechargeable batteries) Rechargeable batteries are recharged externally	0554 0110
Testo rechargeable battery pack NiMH for control unit, logger	0515 0097
Power unit 230 V, for control unit, logger and analog output box For mains operation and battery recharging	0554 1084
Analog output box + Power box	
Analog output box, 6 channels, 4 to 20 mA For output on an analog recorder or process control	0554 0845
Power unit 230 V, for control unit, logger and analog output box For mains operation and battery recharging	0554 1084
Power box, connected to control unit to increase field operating life and supply power to Testo data bus	0554 1045
Mains unit for power box (110/230 V; 50/60 Hz, 12 V, 3 A)	0554 1143
testo data bus	
Connection cable, 2 m, for Testo data bus	0449 0042
Connection cable, 5 m, for Testo data bus	0449 0043
Connection cable, 20 m, for Testo data bus	0449 0044
Mains unit (110/230 V; 50/60 Hz, 12 V, 3 A) supplies power to Testo data bus	0554 1145
Terminal plug for Testo data bus	0554 0119
Software and Accessories	
ComSoft 3 for data management, incl. RS 232 connection cable Incl. database, analysis and graphics function, data analysis, trend curve	0554 0841
Testo PCMCIA plug-in card incl. Comsoft 3 software, cable for Testo data bus, adapter and terminal plug	0554 0590
Electrical isolation for RS232 (connects measuring instrument to PC)	0554 0006
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
Spare thermal paper for printer (6 rolls)	0554 0569
Spare thermal paper for printer (6 rolls) Measurement data documentation legible for up to 10 years	0554 0568
Holding unit/Theft-proof with lock for logger wall holder	0554 1782
Connection hose, silicone, 5m long Max. load 700 hPa (mbar)	0554 0440
System case	
System case (aluminium) for measuring instrument, probes and accessories Probes in lid make it easy to find parts in case	0516 0410
Large system case (aluminium) for control unit, up to 6 loggers, probes and accessories 1 section for velocity probes, ample space in lid for probes and large section in base for accessories	0516 0420

Calibration Certificates	Part no.
Calibration certificates/Temperature	
ISO calibration certificate/Temperature Temp. datalogger; calibration points -18°C; 0°C; +60°C	0520 0151
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 Temp. datalogger; cal. points -20°C; 0°C; +60°C	0520 0261
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 Data loggers; calibration points freely selectable from 5 to 95%RH at +15 to +35°C or -18 to +80°C	0520 0066
ISO cal. cert./Humidity Humidity datalogger; calibration points 11.3%RH and 75.3%RH at +25°C	0520 0076
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 cert./Humidity Humidity datalogger; cal. points 11.3%RH and 75.3%RH at +25°C	0520 0246
DKD calibration certificate/Humidity Cal. points freely selectable from 5 to 95%RH at +25° C or +5 to +70°C	0520 0236
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/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	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

Technical data

Probe type	Vane	Thermal	Testo humid. sensor, cap.	Pressure	
Meas. range	0 to +60 m/s	0 to +20 m/s	0 to +100 %RH	10 to 30000 hPa	
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 +4.99 m/s) ±0.04 m/s (+5 to +20 m/s)	See probe data	Probe 0638 1345 Probe 0638 1445 Probe 0638 1545 Probe 0638 1645 ±0.1% of mv Probe 0638 1740 Probe 0638 1840 Probe 0638 1940 ±0.2% of mv	
Resolution	0.01 m/s (für Ø 60/100 mm), 0.1 m/s (für restl. Sonden)	0.01 m/s (0 to +20 m/s)	0.1 %RH (0 to +100 %RH)	0.001 hPa (Probe 0638 1345) 0.001 hPa (Probe 0638 1445) 0.01 hPa (Probe 0638 1545) 1 hPa (Probe 0638 1645) 0.01 bar (Probe 0638 1740) 0.01 bar (Probe 0638 1840) 0.01 bar (Probe 0638 1940)	

Probe type	Pt100	Type K (NiCr-Ni)	Type S (Pt10Rh-Pt)	Type J (Fe-CuNi)	Type T (Cu-CuNi)
Meas. range	-200 to +800 °C	-200 to +1370 °C	0 to +1760 °C	-200 to +1000 °C	-40 to +350 °C
Accuracy ±1 digit	±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 +199.9 °C)	±0.4 °C (-40 to +200 °C) ±1 °C (+200.1 to +350 °C)
Resolution	0.01 °C (-99.9 to +300 °C) 0.1 °C (-200 to -100 °C) 0.1 °C (+301 to +800 °C)	0.1 °C (-200 to +1370 °C)	1 °C (0 to +1760 °C)	0.1 °C (-200 to +1000 °C)	0.1 °C (-40 to +350 °C)

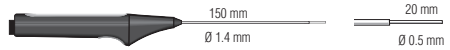
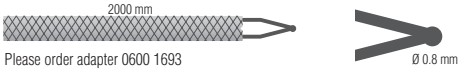
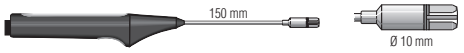
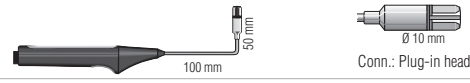
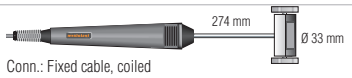
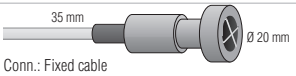
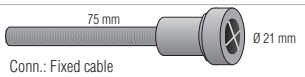
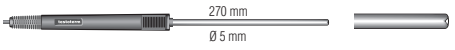
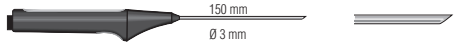
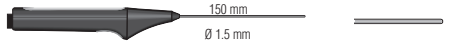
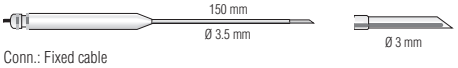
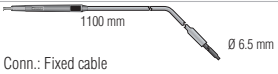
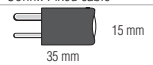
Probe type	NTC	CO probe	CO2 probe	CO2 probe	
Meas. range	-40 to +150 °C	0 to +500 ppm CO	0 to +1 Vol. % CO_2	0 to +10000 ppm CO_2	
Accuracy ±1 digit	±0.2 °C (-10 to +50 °C) ±0.4 °C (-40 to -11 °C) ±0.4 °C (+51 to +150 °C)	±5% of mv (0 to +500 ppm CO)	See probe data	See probe data	
Resolution	0.1 °C (-40 to +150 °C)				

Probe type	Mechanical	Current/voltage measurement	Current/voltage measurement	Control unit, integ. press. sensor	Control unit, integ. press. sensor
Meas. range	+20 to +20000 rpm	0 to +20 mA	0 to +10 V	-200 to +200 hPa	-40 to +40 hPa
Accuracy ±1 digit	(+20 to +20000 rpm)	±0.04 mA (0 to +20 mA)	±0.01 V (0 to +10 V)	±1.5% of mv (-50 to -200 hPa) ±1.5% of mv (+50 to +200 hPa) ±0.5 hPa (-49.9 to +49.9 hPa)	±1.5% of mv (-3 to -40 hPa) ±1.5% of mv (+3 to +40 hPa) ±0.03 hPa (-2.99 to +2.99 hPa)
Resolution	1 rpm (+20 to +20000 rpm)	0.01 mA (0 to +20 mA)	0.01 V (0 to +10 V)	0.1 hPa (-200 to +200 hPa)	0.01 hPa (-40 to +40 hPa)

	testo 454, control unit	Logger, measures and saves readings	Analog output box (mA out)	Power box	
Oper. temp.	-5 to +45 °C	-10 to +50 °C	-10 to +50 °C	0 to +40 °C	
Storage temp.	-20 to +50 °C	-25 to +60 °C	-25 to +60 °C	-20 to +50 °C	
Battery type	4 AA batteries	Alkali manganese			
Battery life	8 h *1	24 h *2		35 h	
Memory	250000	250000			
Weight	850 g	450 g	305 g	700 g	
Dimensions	252 x 115 x 58 mm	200 x 89 x 37 mm	200 x 89 x 37 mm	200 x 89 x 37 mm	
Warranty	2 years	3 years	3 years	3 years	

*1 Battery life in continuous operation with 1 T/C probe

*2 Battery life in continuous operation with a logger/4 T/C probes

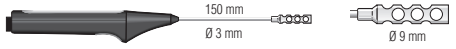
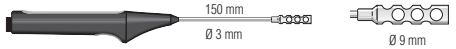
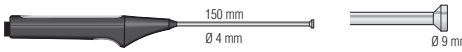
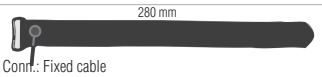
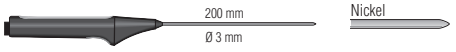
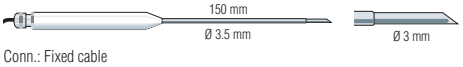
Probes Type K (NiCr-Ni)	Illustration	Meas. range	Accuracy	t_{99}	Part no.
Super quick-action immersion/penetration probe for measurements in gases and liquids with a low-mass tip	 Conn.: Plug-in head. connection cable 0430 0143 or 0430 0145 required	-200 to +600 °C	Class 1	1 s	0604 9794 0614 9794 *
Thermocouple, made of fibre-glass insulated thermal pipes, pack of 5	 Please order adapter 0600 1693	-200 to +400 °C Insulation: twin conductor, flat, oval, opposed and covered with fibre-glass, both conductors are wrapped together with fibre-glass and soaked with lacquer, please order adapter 0600 1693	Class 1	5 s	0644 1109
Quick-action surface probe with sprung thermocouple strip, measuring range short-term to +500°C	 Conn.: Plug-in head. connection cable 0430 0143 or 0430 0145 required	-200 to +300 °C	Class 2	3 s	0604 0194 0614 0194 *
Super quick-action surface probe, probe tip at 90° angle, with sprung thermocouple strip	 Conn.: Plug-in head. connection cable 0430 0143 or 0430 0145 required	-200 to +300 °C	Class 2	3 s	0604 0994
Robust surface probe	 Conn.: Plug-in head. connection cable 0430 0143 or 0430 0145 required	-200 to +600 °C	Class 1	25 s	0604 9993 *0614 9993* *
Robust surface probe, at 90° angle, suitable for inaccessible places	 Conn.: Plug-in head. connection cable 0430 0143 or 0430 0145 required	-200 to +600 °C	Class 1	25 s	0604 9893 *0614 9893* *
Robust surface probe with sprung thermocouple strip for high temperature range up to +700°C	 Conn.: Fixed cable, coiled	-200 to +700 °C	Class 2	3 s	0600 0394
Roller surface probe for measurements on rollers and rotating drums, max. circumferential velocity 18 to 400m/min	 Conn.: Fixed cable, coiled	-50 to +240 °C	Class 2		0600 5093
Magnetic probe, adhesive power approx. 20 N, with magnets, for measurements on metal surfaces	 Conn.: Fixed cable	-50 to +170 °C	Class 2		0600 4793
Magnetic probe, adhesive power approx. 10 N, with magnets, for higher temperatures, measures on metal surfaces	 Conn.: Fixed cable	-50 to +400 °C	Class 2		0600 4893
Miniature surface probe for measurements on electronic components, small motors...	 Conn.: Fixed cable	-200 to +400 °C	Class 2	3 s	0600 1494
Adhesive thermocouple, pack of 2, carrier material: aluminium foil Is fixed at the measuring point using conventional adhesives or silicone heat paste 0554 0004		-200 to +200 °C	Class 1		0644 1607
Fast response immersion/penetration probe	 Conn.: Plug-in head. connection cable 0430 0143 or 0430 0145 required	-200 to +400 °C	Class 1	3 s	0604 0293 *0614 0293* *
Super quick-action immersion/penetration probe for measurements in liquids	 Conn.: Plug-in head. connection cable 0430 0143 or 0430 0145 required	-200 to +600 °C	Class 1	1 s	0604 0493 *0614 0493* *
Super quick-action immersion/penetration probe for high temperatures	 Conn.: Plug-in head. connection cable 0430 0143 or 0430 0145 required	-200 to +1100 °C	Class 1	1 s	0604 0593 *0614 0593* *
Super quick-action immersion/penetration probe for measurements in gases and liquids with a low-mass tip	 Conn.: Plug-in head. connection cable 0430 0143 or 0430 0145 required	-200 to +600 °C	Class 1	1 s	0604 9794 *0614 9794* *
Robust immersion/penetration probe made of V4A stainless steel, waterproof and oven-proof, e.g. for the food sector	 Conn.: Fixed cable	-200 to +400 °C	Class 1	3 s	0600 2593
Smelting probe for measurements in non-ferrous melting baths, with exchangeable measuring tips	 Conn.: Fixed cable	-200 to +1250 °C	Class 1	60 s	0600 5993
Pipe wrap probe for pipes with up to 2" diameter	 Conn.: Fixed cable	-60 to +130 °C	Class 2	5 s	0600 4593
Spare meas. head for pipe wrap probe		-60 to +130 °C	Class 2	5 s	0602 0092

**with EEPROM: Precision adjustment for each probe at a measuring point; measuring range limits are saved in probe; t95 extrapolation; surface allowance in surface probe can be adapted to measuring task*

testo 454

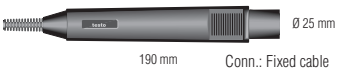
Suitable probes at a glance

Probes Type K (NiCr-Ni)	Illustration	Meas. range	Accuracy	t_{99}	Part no.
Plug-in measuring tip, 750mm long, flexible, for high temperatures, outer casing: stainless steel 1.4541	 Please order handle with Part no. 0600 5593	-200 to +900 °C	Class 1	4 s	0600 5393
Plug-in measuring tip, 1200 mm long, flexible, for high temperatures, outer casing: stainless steel 1.4541	 Please order handle with Part no. 0600 5593	-200 to +900 °C	Class 1	4 s	0600 5493
Plug-in measuring tip, 550mm long, flexible, for high temperatures, outer casing: Inconel 2.4816	 Please order handle with Part no. 0600 5593	-200 to +1100 °C	Class 1	4 s	0600 5793
Plug-in measuring tip, 1030mm long, flexible, for high temperatures, outer casing: Inconel 2.4816	 Please order handle with Part no. 0600 5593	-200 to +1100 °C	Class 1	4 s	0600 5893

Probes Pt100	Illustration	Meas. range	Accuracy	t_{99}	Part no.
Standard air probe	 Conn.: Plug-in head. connection cable 0430 0143 or 0430 0145 required	-200... +600 °C	Class A	75 s	0604 9773
Precision air probe	 Conn.: Plug-in head. connection cable 0430 0143 or 0430 0145 required	-100 to +400 °C	1/10 Class B (0 to 100°C) 1/5 Class B (rem. range) to EN 60751	75 s	0628 0017
Robust surface probe	 Conn.: Plug-in head. connection cable 0430 0143 or 0430 0145 required	-50 to +400 °C	Class B	40 s	0604 9973 *0628 0018* *
Velcro probe for pipes with diameter of max. 75 mm	 Conn.: Fixed cable	-50 to +150 °C	Class B	40 s	0628 0019
Standard immersion/penetration probe	 Conn.: Plug-in head. connection cable 0430 0143 or 0430 0145 required	-200 to +400 °C	Class A	20 s	0604 0273
Standard immersion/penetration probe	 Conn.: Plug-in head. connection cable 0430 0143 or 0430 0145 required	-200 to +600 °C	Class A	20 s	0604 0274
Highly accurate immersion/penetration probe incl. certificate	 Conn.: Plug-in head. connection cable 0430 0143 or 0430 0145 required	-40 to +300 °C	±0.05 °C (+0.01 to +100 °C) ±(0.05 °C ±0.05% of mv) (-40 to 0 °C) ±(0.05 °C ±0.05% of mv) (+100.01 to +300 °C)	60 s	0614 0240
Highly accurate immersion/penetration probe	 Conn.: Plug-in head. connection cable 0430 0143 or 0430 0145 required	-100 to +400 °C	1/10 Class B (0 to 100°C) 1/5 Class B (rem. range) to EN 60751	30 s	0628 0015
Flexible precision immersion probe, cable heat-proof up to +300°C	 Conn.: Plug-in head. connection cable 0430 0143 or 0430 0145 required	-100 to +265 °C	1/10 Class B (0 to 100°C) 1/5 Class B (rem. range) to EN 60751	80 s	0628 0016
Robust immersion/penetration probe with sharpened measuring tip, waterproof and oven-proof	 Conn.: Fixed cable	-200 to +400 °C	Class A	30 s	0604 2573

**with EEPROM: Precision adjustment for each probe at a measuring point; measuring range limits are saved in probe; t95 extrapolation; surface allowance in surface probe can be adapted to measuring task*

Probes NTC	Illustration	Meas. range	Accuracy	t_{99}	Part no.
Highly accurate air probe for air and gas temperature measurements with bare, mechanically protected sensor	 Conn.: Fixed cable	-40 to +130 °C	To UNI curve	60 s	0610 9714
Globe thermometer to measure radiant heat	 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

More probes	Illustration	Meas. range	Accuracy	Part no.
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
Mechanical rpm probe with plug-in head Included 2 probe tips Ø 8 and Ø 12 mm 1 hollow cone Ø 8 mm 1 surface speed disc Ø 19 mm to measure rotational speed: rpm = rotational speed in mm/s	 Conn.: Plug-in head. connection cable 0430 0143 or 0430 0145 required	20 to 20000 rpm	±1 digit	0640 0340
Current/voltage cable (±1 V, ±10 V, 20 mA)		0 to +1000 mV 0 to +10 V 0 to +20 mA	±1 mV (0 to +1000 mV) ±0.01 V (0 to +10 V) ±0.04 mA (0 to +20 mA)	0554 0007

Accessories	Part no.
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
Extension cable, 5 m long, between plug-in head cable and instrument , PUR coating material	0409 0063
Telescopic handle, max. 1 m, for probe with plug-in head, Cable: 2.5 m long, PUR coating material	0430 0144
Glass shaft for immersion/penetration probe to protect from corrosive agents For probes with Part nos. 0604 0273 and 0628 0015	0554 7072
Adapter to connect NiCr-Ni thermocouples and probes with open wire ends	0600 1693
Handle for plug-in measuring tip	0600 5593
Silicone heat paste (14g), Tmax = +260°C, Improves heat transfer in surface probes	0554 0004
Spare measuring tip for smelting probe	0363 1712

More probes

Air probes	Illustration	Meas. range	Accuracy		t_{99}	Part no.
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	±2 %RH (+2 to +98 %RH)	±0.4 °C (-10 to +50 °C) ±0.5 °C (remaining range)	12 s	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	±2 %RH (+2 to +98 %RH)	±0.4 °C (-10 to +50 °C) ±0.5 °C (remaining range)	12 s	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	±2 %RH (+2 to +98 %RH)	±0.4 °C (-10 to +50 °C) ±0.5 °C (-20 to -10.1 °C) ±0.5 °C (+50.1 to +70 °C)	15 s	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	±1 %RH (+10 to +90 %RH) ±2 %RH (remaining range)	* ±0.4 °C (-10 to +50 °C) ±0.5 °C (remaining range)	12 s	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	±2 %RH (+2... +98 %RH)	±0.4 °C (+0.1 to +50 °C) ±0.5 °C (-20 to 0 °C) ±0.5 °C (+50.1 to +70 °C)	12 s	0636 9742

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

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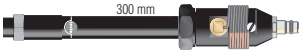
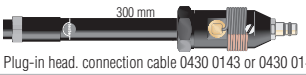
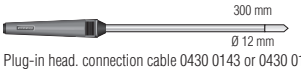
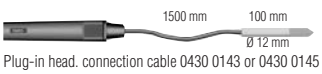
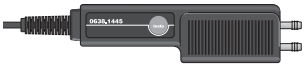
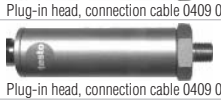
Suitable probes at a glance

Probes Process humidity	Illustration	Meas. range	Accuracy		t_{99}	Part no.
Standard pressure dew point probe for measurements in compressed air systems	 Plug-in head. connection cable 0430 0143 or 0430 0145 required	0 to +100 %RH -30 to +50 °C tpd		±0.9 °C tpd (+0.1 to +50 °C tpd) ±1 °C tpd (-4.9 to 0 °C tpd) ±2 °C tpd (-9.9 to -5 °C tpd) ±3 °C tpd (-19.9 to -10 °C tpd) ±4 °C tpd (-30 to -20 °C tpd)	300 s	0636 9840
Precision pressure dew point probe for measurements in compressed air systems incl. cert. with test point -40°C tpd	 Plug-in head. connection cable 0430 0143 or 0430 0145 required	0 to +100 %RH -60 to +50 °C tpd		±0.8 °C tpd (-4.9 to +50 °C tpd) ±1 °C tpd (-9.9 to -5 °C tpd) ±2 °C tpd (-19.9 to -10 °C tpd) ±3 °C tpd (-29.9 to -20 °C tpd) ±4 °C tpd (-40 to -30 °C tpd)	300 s	0636 9841
High humidity level probe w/ heated sensor element, no humidity on sensor	 Plug-in head. connection cable 0430 0143 or 0430 0145 required	0 to +100 %RH -20 to +85 °C	±2.5 %RH (0 to +100 %RH)	±0.4 °C (-10 to +50 °C) ±0.5 °C (-20 to -10.1 °C) ±0.5 °C (+50.1 to +85 °C)	30 s	0636 2142
Robust high temperature/humidity probe up to +180°C	 Plug-in head. connection cable 0430 0143 or 0430 0145 required	0 to +100 %RH -20 to +180 °C	±2 %RH (+2 to +98 %RH)	±0.4 °C (+0.1 to +50 °C) ±0.5 °C (remaining range)	30 s	0628 0021
Flexible humidity probe (does not retain shape) for measurements in inaccessible places	 Plug-in head. connection cable 0430 0143 or 0430 0145 required	0 to +100 %RH -20 to +180 °C	±2 %RH (+2 to +98 %RH)	±0.4 °C (+0.1 to +50 °C) ±0.5 °C (-20 to 0 °C) ±0.5 °C (+50.1 to +180 °C)	30 s	0628 0022

Probes Material and equilibrium moisture	Illustration	Meas. range	Accuracy		t_{99}	Part no.
Flexible humidity probe with mini module for meas. e.g. on material testing rigs, module cable length 1500mm, probe tip 50x19x7mm	 Plug-in head. connection cable 0430 0143 or 0430 0145 required	0 to +100 %RH -20 to +125 °C	±2 %RH (+2 to +98 %RH)	±0.4 °C (-10 to +50 °C) ±0.5 °C (remaining range)	20 s	0628 0013
Sword probe for measuring humidity and temperature in stacked material	 Plug-in head. connection cable 0430 0143 or 0430 0145 required	0 to +100 %RH -20 to +70 °C	±2 %RH (+2 to +98 %RH)	±0.4 °C (-10 to +50 °C) ±0.5 °C (-20 to -10.1 °C) ±0.5 °C (+50.1 to +70 °C)	12 s	0636 0340
Robust humidity probe e.g. for measuring equilibrium moisture or for measurements in exhaust ducts to +120°C	 Plug-in head. connection cable 0430 0143 or 0430 0145 required	0 to +100 %RH -20 to +120 °C	±2 %RH (+2 to +98 %RH)	±0.4 °C (-10 to +50 °C) ±0.5 °C (remaining range)	30 s	0636 2140
Material moisture probe				Free scaling, reference measurement, no water level		0636 0365
Material/building moisture cable		0 to 100 k Ohm = 100 to 0 %		Display values in instrument display mean: 100 to 66 wet; 0 to 1 very dry		0636 0565

Probes aw value	Illustration	Meas. range	Accuracy		t_{99}	Part no.
aw value set: pressure-tight precision humidity probe with certificate, measurement chamber and 5 sample bowls (plastic)	 Reproducibility of aw value ±0.003	0 to +1 aW 0 to +100 %RH -20 to +70 °C	±0.01 aW (+0.1 to +0.9 aW) ±0.02 aW (+0.9 to +1 aW)	±0.4 °C (-10 to +50 °C) ±0.5 °C (remaining range)		0628 0024

Pressure probes	Illustration	Probe type	Meas. range	Accuracy	Part no.
Precision pressure probe, 100 Pa, measures differential pressure		Differential pressure probe	0 to +100 Pa	±(0.3 Pa ±0.5% of mv) (0 to +100 Pa)	0638 1345
Pressure probe, 10 hPa, measures differential pressure		Differential pressure probe	0 to +10 hPa	±0.03 hPa (0 to +10 hPa)	0638 1445
Pressure probe, 100 hPa, measures differential pressure		Differential pressure probe	0 to +100 hPa	±0.5% of mv (+20 to +100 hPa) ±0.1 hPa (0 to +20 hPa)	0638 1545
Pressure probe, 2000 hPa, measures absolute pressure		Absolute pressure probe	0 to +2000 hPa	±5 hPa (0 to +2000 hPa)	0638 1645

Pressure probes	Illustration		Probe type	Meas. range	Accuracy	Part no.
Low pressure probe made of refrigerant-proof stainless steel, up to 10 bar, without cable	 Plug-in head, connection cable 0409 0202 required	Screw-in thread 7/16" UNF	Low pressure probe	-1 to +10 bar	±1% of fsv Overload ±32 bar	0638 1740
High pressure probe, refrigerant-proof stainless steel, up to 30 bar, without cable	 Plug-in head, connection cable 0409 0202 required	Screw-in thread 7/16" UNF	High pressure probe	-1 to +30 bar	±1% of fsv Overload ±70 bar	0638 1840
High press. probe, refrigerant-proof st. steel, up to 40 bar, w/o cable	 Plug-in head, connection cable 0409 0202 required	Screw-in thread 7/16" UNF	High pressure probe	-1 to +40 bar	±1% of fsv (-1 to +40 bar) Overload ±70 bar (-1 to +40 bar)	0638 1940

Caps for humidity probes Ø 12m and 21mm	Illustration			Part no.
Metal protection cage, Ø 21 mm for humidity probes, material: stainless steel V4A. Quick adjustment time, robust and temperature-proof. Used when measuring velocities of less than 10 m/s		Ø 21 mm	All humidity probes with Ø 21 mm	0554 0665
Metal protection cage, Ø 12 mm for humidity probes, material: stainless steel V4A. Quick adjustment time, robust and temperature-proof. Used when measuring velocities of less than 10 m/s.		Ø 12 mm	0636 9740, 0636 9715	0554 0755
Wire mesh filter, Ø 21 mm, insertable filter for metal protection cage and plastic cap. Material: stainless steel V4A, quick adjustment time, protects from dirt and damage. Applications: meteorology, splashwater, condensation.		Ø 21 mm	All humidity probes with Ø 21 mm	0554 0667
Cap with wire mesh filter, Ø 12 mm			All humidity probes with Ø 12 mm	0554 0757
Teflon sintered filter, Ø 21 mm, PTFE. Not affected by condensation, water-repellent, resistant to corrosive substances. Applications: compressed air measurements, high humidity range (continuous measurements), high velocities		Ø 21 mm	All humidity probes with Ø 21 mm	0554 0666
Teflon sintered filter, Ø 12 mm, PTFE. Not affected by condensation, water-repellent, resistant to corrosive substances. Applications: compressed air measurements, high humidity range (continuous measurements), high velocities		Ø 12 mm	0636 9740, 0636 9715	0554 0756
Teflon sintered filter, Ø 12 mm, PTFE. Not affected by condensation, water-repellent, resistant to corrosive substances. Applications: compressed air measurements, high humidity range (continuous measurements), high velocities		Ø 12 mm	0628 0021, 0628 0022, 0636 2140, 0636 2142	0554 0758
Stainless steel sintered cap, Ø 21 mm, made of stainless steel V2A. Highly robust, suitable for penetration, clean with compressed air, mechanical protection of sensor. Applications: high mechanical loads, high velocity speeds.		Ø 21 mm	All humidity probes Ø 21 mm	0554 0640
Stainless steel sintered cap, Ø 12mm, made of stainless steel V2A. Highly robust, suitable for penetration, should be cleaned with compressed air, mechanical protection of sensor. Applications: high mechanical loads, high velocity speeds.		Ø 12 mm	0636 9740, 0636 9715	0554 0647
Teflon cap, Ø 5 mm, attachable, PTFE material, (5 off). Applications: dust protection, high humidity level measurements, high velocities		Ø 5 mm	0636 2130	0554 1031

Accessories: Humidity probes	Part no.
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
Extension cable, 5 m long, between plug-in head cable and instrument PUR coating material	0409 0063
Telescopic handle, max. 1 m, for probe with plug-in head Cable: 2.5 m long, PUR coating material	0430 0144
Telescopic handle, 340 - 800mm long	0430 9715
Adapter for surface humidity measuring, for humidity probes Ø 12mm Locates damp spots on walls, for example	0628 0012
Cap for bore holes, for humidity probe Ø 12 mm Measures equilibrium moisture in bore holes	0554 2140
Control and humidity adjustment set 11.3%RH/75.3%RH incl. adapter for humidity probes	0554 0660
Control and storage humidity (33%RH) for humidity probes	0554 0636

Accessories: Pressure probes	Part no.
Connection cable, 2.5 m long, for pressure probes 0638 1741/1841/1941	0409 0202
Adapter for pressure probes, 1/2" outer thread, 1/4" inner thread	0699 3127
Magnetic holder for pressure probes	0554 0225

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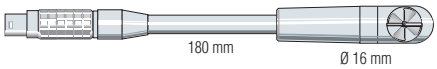
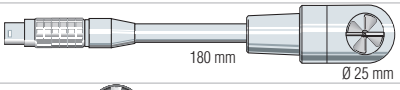
Suitable probes at a glance

Vane probes	Illustration	Probe type	Meas. range	Accuracy	Part no.
Vane probe, Ø 12 mm, can be attached to handle or telescopic handle	 180 mm Ø 12 mm	Vane	+0.6 to +20 m/s Oper. temp. -30 to +140 °C	±(0.2 m/s ±1% of mv) (+0.6 to +20 m/s)	0635 9443
Vane/temperature probe, Ø 16 mm, attachable to handle or telescopic handle	 180 mm Ø 16 mm	Vane Type K (NiCr-Ni)	+0.4 to +60 m/s -30 to +140 °C	±(0.2 m/s ±1% of mv) (+0.4 to +60 m/s)	0635 9540
Vane/temperature probe, Ø 25 mm, can be attached to handle or telescopic handle	 180 mm Ø 25 mm	Vane Type K (NiCr-Ni)	+0.4 to +40 m/s -30 to +140 °C	±(0.2 m/s ±1% of mv) (+0.4 to +40 m/s)	0635 9640
Bendable vane probe (can be bent by 90°), Ø 60 mm, attachable to handle or telescopic handle, for measurements on ventilation outlets	 Ø 60 mm	Vane	+0.25 to +20 m/s Oper. temp. 0 to +60 °C	±(0.1 m/s ±1.5% of mv) (+0.25 to +20 m/s)	0635 9440
Bendable vane probe (can be bent by 90°), Ø 100 mm, attachable to handle or telescopic handle, for measurements on ventilation outlets	 Ø 100 mm	Vane	+0.1 to +15 m/s Oper. temp. 0 to +60 °C	±(0.1 m/s ±1.5% of mv) (+0.1 to +15 m/s)	0635 9340
Vane probe, Ø 16 mm, for stationary assembly, 3 m cable (PVC)	 Ø 16 mm 250 mm		+0.4 to +60 m/s Oper. temp. 0 to +70 °C	±(0.2 m/s ±1% of mv) (+0.4 to +60 m/s)	0628 0036
High temperature vane probe, Ø 25 mm, with handle for continuous measurements up to +350°C	 560 mm Ø 25 mm	Vane Type K (NiCr-Ni)	+0.6 to +20 m/s -40 to +350 °C	±(0.3 m/s ±1% of fsv) (+0.6 to +20 m/s)	0635 6045

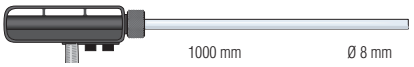
Accessories: Vane probes	Part no.
Professional telescopic handle for plug-in vane probes, max. 1 m long, extension on request	0430 0941
Extension for telescopic handle, 2 m long Please also order the 0409 0063 extension cable	0430 0942
Handle for plug-in vane probes	0430 3545

Accessories: Vane probes	Part no.
Swan neck, flexible connection between probe and connection part	0430 0001
Magnetic probe holder for vane probes	0554 0430

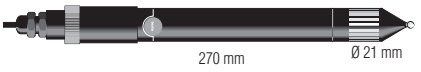
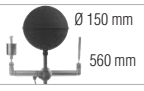
Thermal probes	Illustration	Probe type	Meas. range	Accuracy	Part no.
Robust hot bulb probe, Ø 3 mm, for measurements in the lower velocity range, 2m cable (PVC)	 150 mm Ø 3 mm	Hot bulb NTC	0 to +10 m/s -20 to +70 °C	±(0.03 m/s ±5% of mv) (0 to +10 m/s)	0628 0035
Affordable, robust hot bulb probe, Ø 3 mm, for measurements in the lower velocity range, with handle	 Ø 4 mm 150 mm Ø 3 mm	Hot bulb NTC	0 to +10 m/s -20 to +70 °C	±(0.03 m/s ±5% of mv) (0 to +10 m/s)	0635 1549
Robust hot bulb probe, Ø 3 mm, with handle and telescopic handle for measurements in the lower velocity range	 850 mm Ø 3 mm	Hot bulb NTC	0 to +10 m/s -20 to +70 °C	±(0.03 m/s ±5% of mv) (0 to +10 m/s)	0635 1049
Quick-action hot wire probe, Ø 10 mm, with telescopic handle, for measurements in the lower velocity range with direction recognition	 760 mm Ø 10 mm	Hot wire NTC	0 to +20 m/s -20 to +70 °C	±(0.03 m/s ±4% of mv) (0 to +20 m/s)	0635 1041
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	Hot wire NTC	0 to +5 m/s 0 to +50 °C	±(0.02 m/s ±5% of mv) (0 to +5 m/s)	0635 1047

Pressure probes	Illustration	Probe type	Meas. range	Accuracy	Part no.
Precision pressure probe, 100 Pa, measures differential pressure and velocities (in connection with Pitot tube)		Differential pressure probe	0 to +100 Pa	±(0.3 Pa ±0.5% of mv) (0 to +100 Pa)	0638 1345
Pressure probe, 10 hPa, measures differential pressure and velocities (in connection with Pitot tube)		Differential pressure probe	0 to +10 hPa	±0.03 hPa (0 to +10 hPa)	0638 1445
Pressure probe, 100 hPa, measures differential pressure and velocities (in connection with Pitot tube)		Differential pressure probe	0 to +100 hPa	±0.5% of mv (+20 to +100 hPa) ±0.1 hPa (0 to +20 hPa)	0638 1545

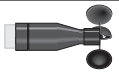
Prandtl's Pitot tubes	Illustration		Accuracy	Part no.
Pitot tube, 300 mm long, stainless steel, measures flow velocity when used with pressure probes 0638 1345/..1445/..1545		Ø 4 mm 300 mm	Oper. temp. 0 to +600 °C	0635 2245
Pitot tube, 350 mm long, stainless steel, measures flow velocity when used with pressure probes 0638 1345/..1445/..1545		Ø 7 mm 350 mm	Oper. temp. 0 to +600 °C	0635 2145
Pitot tube, 500 mm long, stainless steel, measures flow velocity when used with pressure probes 0638 1345/..1445/..1545		Ø 7 mm 500 mm	Oper. temp. 0 to +600 °C	0635 2045
Pitot tube, 1000 mm long, stainless steel, measures flow velocity when used with pressure probes 0638 1345/..1445/..1545		Ø 7 mm 1000 mm	Oper. temp. 0 to +600 °C	0635 2345

Straight Pitot tubes	Illustration		Probe type	Meas. range	Part no.
Pitot tube, stainless steel, 360 mm long, measures velocity with temperature, for pressure probes 0638 1345/..1445/..1545		360 mm Ø 8 mm	Type K (NiCr-Ni)	-40 to +600 °C	0635 2040
Pitot tube, stainless steel, 500 mm long, measures velocity with temperature, for pressure probes 0638 1345/..1445/..1545		500 mm Ø 8 mm	Type K (NiCr-Ni)	-40 to +600 °C	0635 2140
Pitot tube, stainless steel, 1000 mm long, measures velocity with temperature, for pressure probes 0638 1345/..1445/..1545		1000 mm Ø 8 mm	Type K (NiCr-Ni)	-40 to +600 °C	0635 2240

Accessories: Pressure probes	Part no.
Connection hose, silicone, 5m long Max. load 700 hPa (mbar)	0554 0440
Magnetic holder for pressure probes For pressure probes 0638 1345/..1445/..1545/..1645	0554 0225

Comfort level measurement	Illustration		Probe type	Meas. range	Accuracy	Part no.
3-function probe for simultaneous measurement of temperature, humidity and velocity. With plug-in head, 0430 0143 connection cable required		270 mm Ø 21 mm	Hot bulb Testo humid. sensor, cap. NTC	0 to +10 m/s 0 to +100 %RH -20 to +70 °C	±(0.03 m/s ±5% of mv)(0 to 10 m/s) ±2 %RH (+2 to +98 %RH) ±0.4 °C (0 to +50 °C) ±0.5 °C (remaining range)	0635 1540
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	Hot wire NTC	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 560 mm		0 to +120 °C	In accordance with ISO 7243 or DIN 33403	0635 8888 ID No. 0699 4239/1

Accessories: 3-Function probe	Part no.
Adapter for humidity adjustment of 3-function probe 0635 1540 Order with adjustment set	0554 0661
Cable, 1.5 m long, connects probe with plug-in head to meas. instrument PUR coating material	0430 0143

Other features	Illustration		Probe type	Meas. range	Accuracy	Part no.
Shell anemometer, 3 m cable, for meteorological wind measurement			Vane	+0.7 to +30 m/s	±(0.3 m/s ±5% of mv) (+0.7 to +30 m/s)	0635 9045

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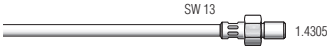
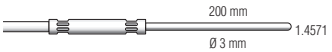
Suitable probes at a glance

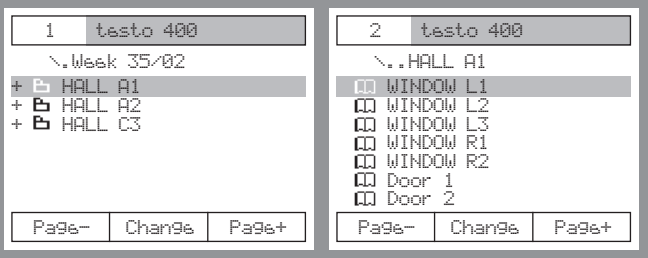
Stationary probes	Illustration	Meas. range	Accuracy	t_{99}	Part no.
Robust, quick-action surface probe, NiCr-Ni, with M14 x 1.5 thread, incl. 2 nuts for mounting, 2 m cable (silicone)		-50 to +180 °C	Class 2	3 s	0628 6021
Universal probe, NiCr-Ni, for measurements in liquids and gases, 2 m cable (PVC), IP 42 connection socket		-200 to +1100 °C	Class 1	2 s	0628 6004
Screw-in probe, Pt100, for measurements at hard-to-access points, M 6 thread, 2 m cable (PVC)		-10 to +80 °C	Class A	70 s	0628 6014
Immersion probe, Pt100, for measurements in water and unclean environments, 2 m cable (silicone)		-50 to +180 °C	Class A	70 s	0628 6003
Immersion probe, Pt100, for measurements in corrosive substances, 2 m cable (PTFE), IP 67		-50 to +260 °C	Class A	50 s	0628 6008
Resistance thermometer, Pt100, for surface measurement, 2 m cable (silicone), IP 65		-30 to +180 °C	Class A	150 s	0628 6016
Universal probe, Pt100, for measurements in liquids and gases, 2m cable (PVC), IP 42		-50 to +400 °C	Class A	15 s	0628 6044
Vane probe, Ø 16 mm, for stationary assembly, 3 m cable (PVC)		+0.4 to +60 m/s Oper. temp. 0 to +70 °C	±(0.2 m/s ±1% of mv) (+0.4 to +60 m/s)		0628 0036
Robust hot bulb probe, Ø 3 mm, for measurements in the lower velocity range, 2m cable (PVC)		0 to +10 m/s -20 to +70 °C	±(0.03 m/s ±5% of mv) (0 to +10 m/s)		0628 0035

Accessories for stationary probes	Part no.
Wall holder with screw-in connection for vane probe, Ø 16mm	0628 0037
Clamp screw connection (steel) with M 8x1 thread, to attach temperature probes with Ø 3mm	0400 6163
Clamp screw connection (steel) with G 1/4" thread, to attach temperature probes with Ø 6mm	0400 6166

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.



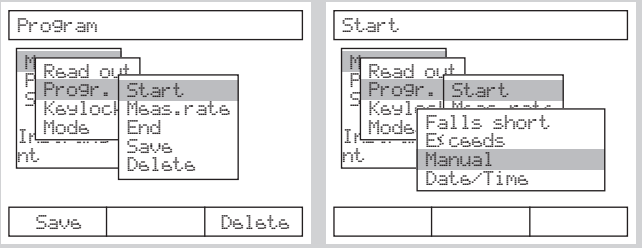
Long-term control made easy:

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.

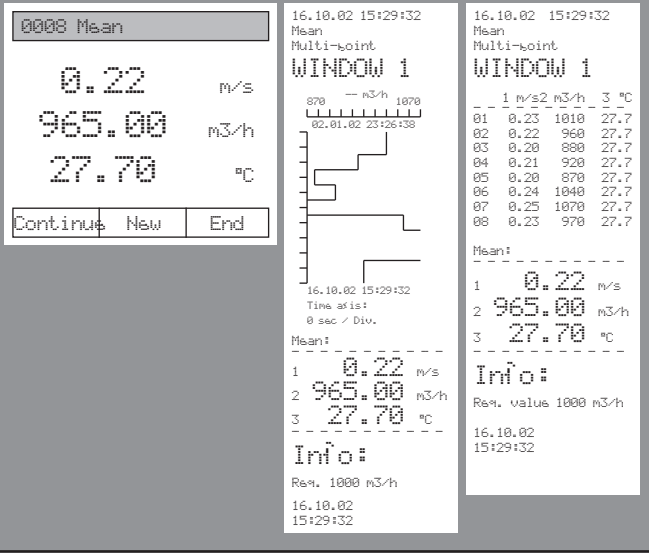
- **The measurement is completed when…**
  - the predefined number of readings is reached.
  - date/time is reached.
  - the memory is full.
  - ended manually.

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



Documentation on-site:

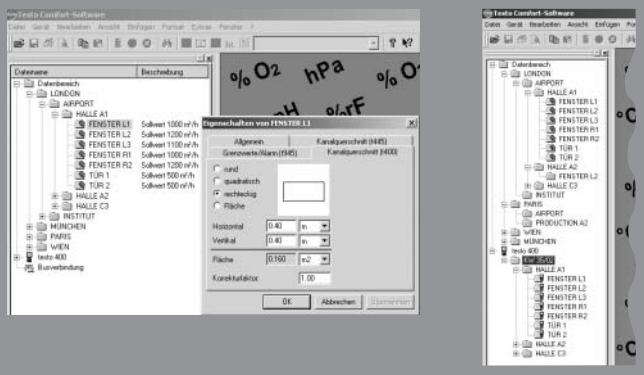
- The individual measurement protocol can be either saved or deleted following analysis.
- The printer immediately supplies the documentation required.
- The attachable comfort printer also offers graphical analysis options.
- Thermal paper for long-term legible measurement data documentation of up to 10 years.



prepare - analyse - file - document

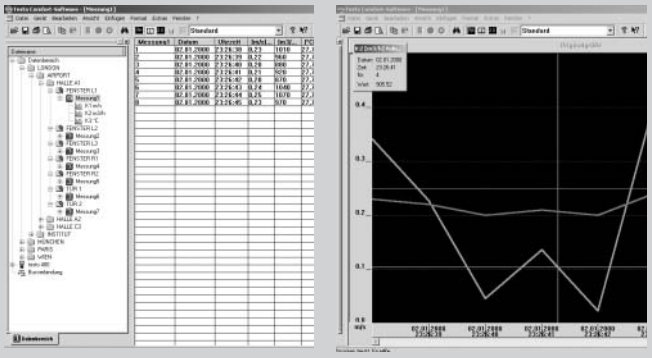
Easy reading management:

- 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.



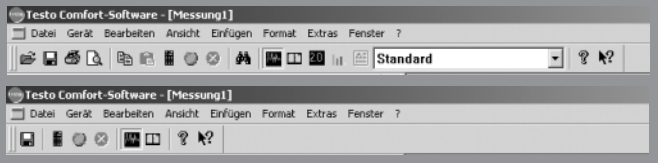
Comprehensive analysis, easy filing:

- 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:

- **Dataloggers 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 (as version also for testo 454 and testo 350)**

ComSoft 3 - Professional with data management
Incl. database, analysis and graphics function, data analysis, trend curve

Part no.
0554 0830

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

Testo printer

Versatile infrared printer

The versatile printer with IRDA and infrared interface saves you time since it stores print data prior to printing. Data is transferred within 2 seconds. The printer is then ready to operate immediately.

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 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), 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

CFR 21 Part 11

Software for requirements in accordance with CFR 21 Part 11

A validation-commpatible ComSoft 3.3 Version 21 CFR 11 has been developed especially for the management and filing of process data. All FDA requirements can be fulfilled if used as part of a cohesive system:

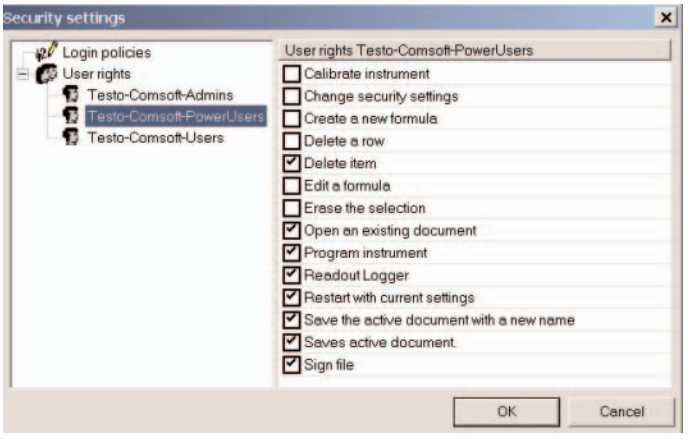
ComSoft 3 - For requirements to CFR 21 Part 11
Incl. database, analysis and graphics function, data analysis, trend curve

Part no.
0554 0821

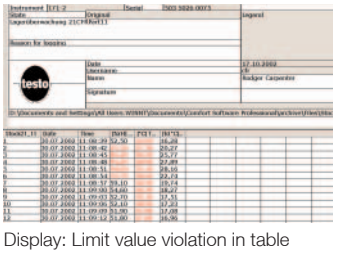
- User management in User Groups by Administrator (using Windows 2000 Rights management and three additional ComSoft-specific user groups)
- Save raw data in tamper-proof file format

designed for 21 CFR 11

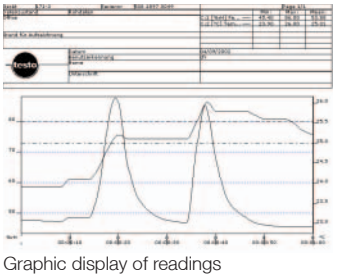
- Identification of damaged or modified raw data
- Recognition of transfer errors using proof totals
- Inactivity lockout to prevent unauthorised access
- Monitors logins and logouts, successful/failed use of digital signatures and modification of raw data with the aid of Audit Trail
- Complete integration in the Windows 2000 security system (certificates, rights management, user and password management, user authentification)
- Option of data export in generally readable PDF file format e.g. to send to the FDA validation point responsible or to display during a company audit.



User management in groups



Display: Limit value violation in table format



Graphic display of readings

Ethernet adapter

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 network

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

Access Ethernet with testo measuring instruments

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	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 configuration	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	Interface	Serial interface on computer board with terminal program Provision of a local virtual COM port (Windows systems)
Power supply	Mains, 5 volt approx. 230 mA		
Humidity class	F to DIN 40040		
EMC	Radio interference and interference resistance		
Interface	25 pin RS 232 connection with 25/9pin adapter		
Logs	TCP/IP, LPR, Telnet, SNMP, DHCP DDNS, ARP, BOOTP, ICMP		

Always at your service!

Please send for more information

Portable Reference
Measurement Engineering
The Intelligent Modular testo 905/650/400 Measurement Instrument Product Line

0981 7052/hd/X/A/03.2005