



Committing to the future

2010

Multi-Function Measuring Instruments



°C

%RH

m/s

hPa

CO₂

Lux

CO

aW

rpm

mA

V



Measurement and application ranges of flow probes

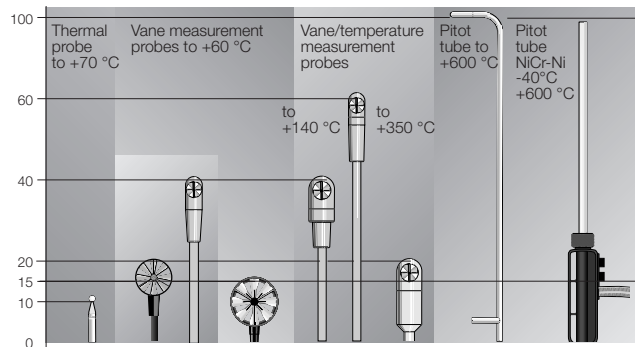
Probe selection

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.

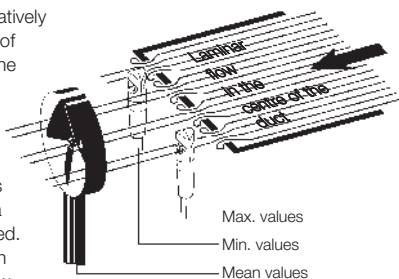
Thermal probes are used for accurate measurements in the range 0 to 5 m/s. Vane probes are ideal for velocities from 5 to 40 m/s. The measuring range of the Pitot tube depends on the differential pressure probe used. The new 100 Pa probe can therefore be used for the exact measurement of flow speed from 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

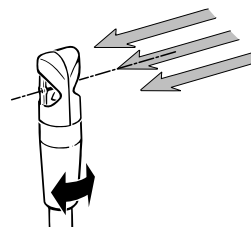
The air vent greatly changes the relatively uniform flow inside the duct. Areas of higher flow velocity are created at the free vent surfaces and areas of low flow velocity and swirl at the grids. The flow profile steadies at a distance from the grid depending on the grid design but is usually 20 cm. 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.



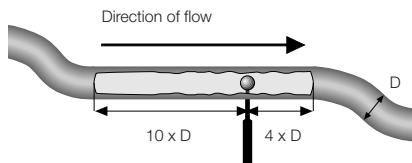
Positioning in air current

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.

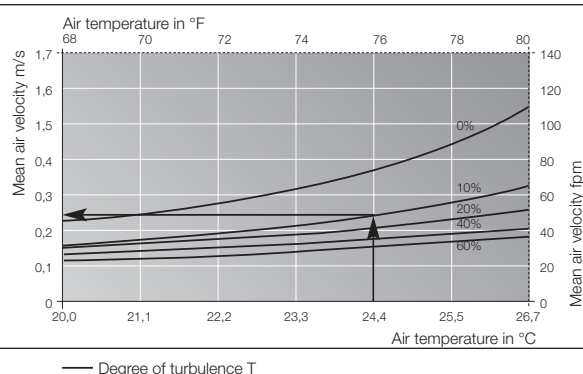
The following procedures are suggested in VDI 2080/EN 12599:

- 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





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testo 435

All measurement parameters for air conditioning

The testo 435 provides the possibility of analysing the indoor air. On the one hand, this serves as an indicator for the well-being of people at their workplaces, and on the other hand as an important and deciding factor in storage and production processes.

In addition to this, the Indoor Air Quality signals whether the air conditioning system (HVAC) is working with as much energy economy as possible, or whether it needs to be adjusted with the help of testo 435.

The parameters CO₂, relative humidity and room temperature are available for evaluating the quality of the air. Absolute pressure, draught, Lux, U-value and surface temperature can additionally be determined. In order to determine the volume flow, all the possibilities of flow velocity measurement are available, such as thermal probes, vane anemometers and Pitot tubes.

Versatility with wireless probes

In addition to classical probes on wires, a wireless measurement up to a distance of 20 m (without obstruction) is possible. Damage to the wire or hindrances in usage are thus eliminated. A maximum of three wireless probes can be recorded and displayed with testo 435. The wireless probes are for the measurement parameters temperature and, depending on the instrument type, humidity. The optional, easily plugged-in radio module can be retrofitted at any time.

All-round talent for ventilation and Indoor Air Quality

Common product advantages testo 435

- Wide selection of probes (optional):
 - IAQ probe for evaluating the indoor air quality via CO₂, air temperature, indoor air humidity and absolute pressure
 - Thermal probe with integrated temperature and air humidity measurement
 - Vane and hot wire probes
 - Radio probes for temperature
- Easy operation with user profiles
- Printout on the testo fast printer (optional)

Further product advantages of the variants

- Integrated differential pressure measurement (435-3/-4, not retrofittable)
 - for flow measurement
 - for monitoring filters
- Extended instrument function (435-2/-4, not retrofittable)
 - Instrument store for 10,000 readings
 - PC software for analysing, archiving and documenting measurement data
 - Humidity probes with radio or wire (optional)
 - Lux probe connection possible
 - Comfort level probe connection possible
 - Possibility of connecting U-value probe



testo 435-1

testo 435-1, multi-functional meas. instr., for A/C, ventilation and Indoor Air Quality, with battery and calibration protocol

Part no.

0560 4351

testo 435-2

testo 435-2, multi-functional measuring instrument for A/C, ventilation and Indoor Air Quality with readings memory, PC software and USB data transmission cable, incl. battery and calibration protocol

Part no.

0563 4352

testo 435-3

testo 435-3, multi-functional measuring instrument with built-in differential pressure measurement for air conditioning, ventilation and Indoor Air Quality, with battery and calibration protocol

Part no.

0560 4353

testo 435-4









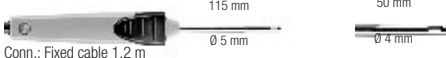


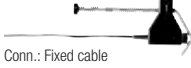






testo 435-4, multi-functional meas. instr. with built-in differential pressure measurement for A/C, ventilation and Indoor Air Quality with readings memory, PC software and USB data transmission cable, with battery and calibration protocol

Part no.

0563 4354

435-1/-2/-3/-4




Probes

435-1/-2/-3/-4					
IAQ probes	Illustration	Meas. range	Accuracy	Part no.	
IAQ probe to assess Indoor Air Quality, CO ₂ , humidity, temperature and absolute pressure measurement, with desk-top stand		0 to +50 °C 0 to +100 %RH 0 to +10000 ppm CO ₂ +600 to +1150 hPa ²	±0.3 °C ±2 %RH (+2 to +98 %RH) ±(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) ±3 hPa	0632 1535	
Ambient CO probe, for detecting CO in buildings and rooms		0 to +500 ppm CO	±5% of mv (+100.1 to +500 ppm CO) ±5 ppm CO (0 to +100 ppm CO)	0632 1235	
Flow velocity probes	Illustration	Meas. range	Accuracy	Part no.	
Thermal velocity probe with built-in temperature and humidity measurement, Ø 12 mm, with telescopic handle (max. 745 mm)		-20 to +70 °C 0 to +100 %RH 0 to +20 m/s	±0.3 °C ±2 %RH (+2 to +98 %RH) ±(0.03 m/s +4% of mv)	0635 1535	
Vane meas. probe, 16 mm diameter, with telescopic handle max. 890 mm, e.g. for meas. in ducts, can be used from 0 to +60 °C		Oper. temp. +0.6 to +40 m/s 0 to +60 °C	±(0.2 m/s +1.5% of mv)	0635 9535	
Vane meas. probe, 60 mm diameter, with telescopic handle max. 910 mm, e.g. for meas. at duct exit, can be used from 0 to +60 °C		Oper. temp. +0.25 to +20 m/s 0 to +60 °C	±(0.1 m/s +1.5% of mv)	0635 9335	
Hot wire probe for m/s and °C, Ø probe head 7.5 mm, with telescopic handle (max. 820 mm)		0 to +20 m/s -20 to +70 °C	±(0.03 m/s +5% of mv) ±0.3 °C (-20 to +70 °C)	0635 1025	
Funnel measurement	Illustration	Meas. range	Accuracy	Part no.	
Vane meas. probe, 100 mm diameter, for measurements with funnel set 0563 4170		+0.3 to +20 m/s 0 to +50 °C	±(0.1 m/s +1.5% of mv) ±0.5 °C	0635 9435	
Funnel set consisting of funnel for disc outlets (Ø 200) and funnel for ventilator (330 x 330 mm) for in- and outgoing air				0563 4170	
Absolute pressure probes	Illustration	Meas. range	Accuracy	Part no.	
Absolute pressure probe 2000 hPa		0 to +2000 hPa	±5 hPa	0638 1835	
Air probes	Illustration	Meas. range	Accuracy	t ₉₉	Part no.
Efficient, robust NTC air probe	 Conn.: Fixed cable 1.2 m	-50 to +125 °C	±0.2 °C (-25 to +80 °C) ±0.4 °C (remaining range)	60 s	0613 1712
Surface probes	Illustration	Meas. range	Accuracy	t ₉₉	Part no.
Fast-reaction paddle surface probe, for measurements in inaccessible places, e.g. narrow apertures and slots TC Type K	 Conn.: Fixed cable	0 to +300 °C	Class 2	5 s	0602 0193
Fast-action surface probe with sprung thermocouple strip, also for uneven surfaces, measurement range short-term to +500°C, TC Type K	 Conn.: Fixed cable	-60 to +300 °C	Class 2*	3 s	0602 0393
Pipe wrap probe for pipe diameter 5 to 65 mm, with exchangeable measuring head. Meas. range short-term to +280°C, TC Type K	 Conn.: Fixed cable	-60 to +130 °C	Class 2*	5 s	0602 4592
Clamp probe for measurements on pipes, pipe diameter 15 to 25 mm (max. 1"), meas. range short-term up to +130°C, TC Type K	 Conn.: Fixed cable	-50 to +100 °C	Class 2*	5 s	0602 4692
Immers./penetr. probes	Illustration	Meas. range	Accuracy	t ₉₉	Part no.
Waterproof immersion/penetration probe, TC Type K	 Conn.: Fixed cable 1.2 m	-60 to +400 °C	Class 2*	7 s	0602 1293
435-2/-4					
IAQ probes	Illustration	Meas. range	Accuracy	Part no.	
Comfort level probe for degree of turbulence measurement with telescopic handle (max. 820 mm) and stand, meets EN 13779 requirements	 max. 820 mm	0 to +50 °C 0 to +5 m/s	±0.3 °C ±(0.03 m/s +4% of mv)	0628 0109	
Lux probe, for measuring light intensity		Accuracy to DIN 5032, Part 6: f1 = 6% = V(Lambda) adjustment f2 = 5% = cos-like weighting, Class C		0635 0545	
Humidity probes	Illustration	Meas. range	Accuracy	Part no.	
Humidity/temperature probe	 Ø 12 mm	-20 to +70 °C 0 to +100 %RH	±0.3 °C ±2 %RH (+2 to +98 %RH)	0636 9735	
Surface probes	Illustration	Meas. range	Accuracy	Part no.	
Temperature probe to determine U-value, triple sensor system for measuring wall temperature, modelling clay included		-20 to +70 °C	Class 1 U-value: ±0.1 ±2% of fsv**	0614 1635	
An additional probe for measuring outer temperatures is required when determining the U-value e.g. 0613 1712 or 0613 1001 or 0613 1002.					

* According to standard EN 60584-2, the accuracy of Class 2 refers to -40 to +1200 °C.

** when used with an NTC or wireless humidity probe for measuring outside temperature and 20 K difference between the air inside and outside

435-3/-4

Prandtl's Pitot tubes	Illustration	Oper. temp.	Part no.
Pitot tube, 350 mm long, stainless steel, for measuring flow velocity		0 to +600 °C	0635 2145
Pitot tube, 500 mm long, stainless steel, for measuring flow velocity		0 to +600 °C	0635 2045
Pitot tube, 1000 mm long, stainless steel, for measuring flow velocity		0 to +600 °C	0635 2345

Technical data

Probe type	NTC	Type K	Type T	Testo humid. sensor, cap.	Vane	Hot wire	Absolute pressure probe	CO ₂ (IAQ probe)
Meas. range	-50 to +150 °C	-200 to +1370 °C	-200 to +400 °C	0 to +100 %RH	0 to +60 m/s	0 to +20 m/s	0 to +2000 hPa	0 to +10000 ppm CO ₂
Accuracy ±1 digit	±0.2 °C (-25 to +74.9 °C) ±0.4 °C (-50 to -25.1 °C) ±0.4 °C (+75 to +99.9 °C) ±0.5% of mv (remaining range)	±0.3 °C (-60 to +60 °C) ±(0.2 °C +0.3% of mv) (remaining range)	±0.3 °C (-60 to +60 °C) ±(0.2 °C +0.3% of mv) (remaining range)	See probe data	See probe data	See probe data	See probe data	See probe data
Resolution	0.1 °C	0.1 °C	0.1 °C	0.1 %RH	0.01 m/s (60 vane) 0.1 m/s (16 vane)	0.01 m/s	0.1 hPa	1 ppm CO ₂

Technical data 435-2/-4

Probe type	Lux
Meas. range	0 to +100000 Lux
Accuracy ±1 digit	See probe data
Resolution	1 Lux / 0.1 Hz

Technical data 435-3/-4

Probe type	Differential pressure probe, internal
Meas. range	0 to +25 hPa
Accuracy ±1 digit	±0.02 hPa (0 to +2 hPa) 1% of mv (remaining range)
Overload	200 hPa
Resolution	0.01 hPa

Oper. temp.	-20 to +50 °C
Storage temp.	-30 to +70 °C
Dimensions	220 x 74 x 46 mm
Battery type	Alkali manganese, mignon, Type AA
Battery life	200 h (typical vane measurement)
Weight	450 g
Material/Housing	ABS/TPE/Metal
Warranty	2 years


Accessories	Part no.
Transport and Protection	
Service case for basic equipment of measuring instrument and probes, dimensions: 400 x 310 x 96 mm	0516 0035
Service case for measuring instrument, probe and accessories, dimensions 520 x 380 x 120 mm	0516 0435
Additional Accessories and Spare Parts	
Handle for attachable humidity probe head for connection to testo 635, incl. probe wire, for measurement / calibration of humidity probe head	0430 9735
Lithium battery button cell CR2032 mignon type batteries for radio handle	0515 0028
Plug-in mains adapter, 5 VDC 500 mA with European adapter, 100-250 VAC, 50-60 Hz	0554 0447
testovent 410, volume flow funnel, Ø 340 mm/330x330 mm, incl. case	0554 0410
testovent 415, volume flow funnel, Ø 210 mm/210x210 mm, incl. case	0554 0415
Funnel set consisting of funnel for disc outlets (Ø 200) and funnel for ventilator (330 x 330 mm) for in- and outgoing air	0563 4170
Connection hose, silicone, 5m long, max. load 700 hPa (mbar)	0554 0440
testo saline pots for control and humidity adjustment of humidity probes, 11.3 %RH and 75.3 %RH with adapter for humidity probe, quick checks or calibration of humidity probe	0554 0660
Sintered PTFE filter, Ø 12 mm, for corrosive media, High humidity range (long-term measurements), high flow velocities.	0554 0756
Stainless steel sintered cap, Ø 12 mm, is screwed onto humidity probe, for measurements at higher flow velocities or in contaminated air	0554 0647
Adhesive material for fixing and sealing	0554 0761

Accessories	Part no.
Printer and Accessories	
Testo fast printer with wireless infrared interface, 1 roll thermal paper and 4 AA batteries, for printing out measurements on site	0554 0549
Spare thermal paper for printer (6 rolls), measurement data documentation legible for up to 10 years	0554 0568
Spare thermal paper for printer (6 rolls)	0554 0569
External fast charger for 1-4 AA rech. batteries, incl. 4 Ni-MH rech. batteries with individual cell charging and charge control display, incl. impulse trickle charging, integrated discharge function, with built-in international mains plug, 100-240 V, 300 mA, 50/60 Hz	0554 0610
Calibration Certificates	
ISO calibration certificate/temperature, meas. instr. with surface probe; calibration points +60°C; +120°C; +180°C	0520 0071
ISO calibration certificate humidity, Calibration points 11.3 %RH and 75.3 %RH at +25°C	0520 0006
ISO calibration certificate/pressure, differential pressure, accuracy 0.1 to 0.6 (% of fsv)	0520 0025
ISO calibration certificate velocity, hot wire, vane anemometer; calibration points 0.5; 0.8; 1; 1.5 m/s	0520 0024
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/light, Calibration points 0;500;1000;2000;4000 Lux	0520 0010
ISO calibration certificate/CO ₂ , CO ₂ probes; calibration points 0; 1000; 5000 ppm	0520 0033


435-1/-2/-3/-4
Radio module for upgrading measuring instrument with radio option

Country versions	Radio freq.	Part no.
Radio module for measuring instrument, 869.85 MHz, approval for the countries: DE, FR, UK, BE, NL, ES, IT, SE, AT, DK, FI, HU, CZ, PL, GR, CH, PT, SI, MT, CY, SK, LU, EE, LT, IE, LV, NO	869.85 MHz FSK	0554 0188
Radio module for measuring instrument, 915.00 MHz FSK, approval for USA, CA, CL	915.00 MHz FSK	0554 0190

Assembled for you: Radio handles with probe head

Radio handles with probe head for surface measurement	Meas. range	Accuracy	Resolution	t ₉₉
Radio handle for attachable probe heads with T/C probe head for surface measurement 	-50 to +350 °C Short-term to +500 °C	Radio handle: ±(0.5 °C +0.3% of mv) (-40 to +500 °C) ±(0.7 °C +0.5% of mv) (remaining range) T/C probe head: Class 2	0.1 °C (-50 to +199.9 °C) 1.0 °C (remaining range)	5 s
Country versions	Radio freq.	Part no.		
Radio handle for plug-in probe heads, incl. T/C adapter, approval for the countries: DE, FR, UK, BE, NL, ES, IT, SE, AT, DK, FI, HU, CZ, PL, GR, CH, PT, SI, MT, CY, SK, LU, EE, LT, IE, LV, NO	869.85 MHz FSK	0554 0189		
T/C probe head for surface measurement, attachable to radio handle, T/C Type K		0602 0394		
Radio handle for plug-in probe heads, incl. T/C adapter, approval for USA, CA, CL	915.00 MHz FSK	0554 0191		
T/C probe head for surface measurement, attachable to radio handle, T/C Type K		0602 0394		

435-2/-4

Radio probes incl. humidity probe head	Meas. range	Accuracy	Resolution
Radio handle for attachable probe heads with humidity probe head 	0 to +100 %RH -20 to +70 °C	±2 %RH (+2 to +98 %RH) ±0.3 °C	0.1 %RH 0.1 °C
Country versions	Radio freq.	Part no.	
Radio handle for plug-in probe heads, incl. T/C adapter, approval for the countries: DE, FR, UK, BE, NL, ES, IT, SE, AT, DK, FI, HU, CZ, PL, GR, CH, PT, SI, MT, CY, SK, LU, EE, LT, IE, LV, NO	869.85 MHz FSK	0554 0189	
Humidity probe head, attachable to radio handle		0636 9736	
Radio handle for plug-in probe heads, incl. T/C adapter, approval for USA, CA, CL	915.00 MHz FSK	0554 0191	
Humidity probe head, attachable to radio handle		0636 9736	

Radio probes: General technical data

Battery type	Radio handle	Measuring rate	0.5 s or 10 s, adjustable on handle	Radio transmission	Unidirectional
Battery life	2 AAA micro batteries	Radio coverage	Up to 20 m (without obstructions)	Oper. temp.	-20 to +50 °C
	215 h (meas. rate 0.5 s)			Storage temp.	-40 to +70 °C
	6 months (meas. rate 10 s)			Protection class	IP54

testo 445

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 fast printer on site.

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

Part no.

0563 4450

Service instrument for ventilation/air conditioning systems

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



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 clear storage	0516 0445
System case (plastic) for measuring instrument, probes and accessories probes in lid make it easy to find parts in case (540 x 440 x 130 mm)	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
Desk-top power supply with international connection options	0554 1143
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 fast printer with wireless infrared interface, 1 roll thermal paper and 4 AA batteries	0554 0549
Fast testo 575 printer, incl. 1 roll of thermal paper and batteries infrared thermal line printer with graphics function	0554 1775
External fast charger for 1-4 AA rech. batteries, incl. 4 Ni-MH rech. batteries with individual cell charging and charge control display, incl. impulse trickle charging, integrated discharge function, with built-in international mains plug, 100-240 V, 300 mA, 50/60 Hz	0554 0610
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, RS232 - 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

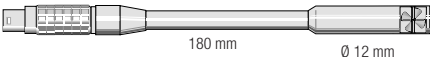
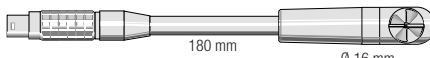


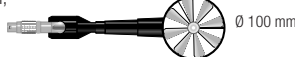



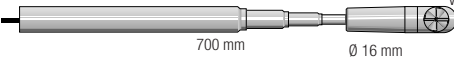




Technical data			
Probe type	Type K (NiCr-Ni)	Type J (Fe-CuNi)	NTC
Meas. range	-200 to +1370 °C	-200 to +1000 °C	-50 to +150 °C
Accuracy ±1 digit	±0.5% of mv (-200 to 60 °C) ±0.5% of mv (+60 to +1370 °C) ±0.3 °C (-60 to +60 °C)	±0.5% of mv (-200 to 60 °C) ±0.5% of mv (+60 to +1000 °C) ±0.3 °C (-60 to +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)







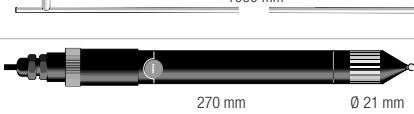










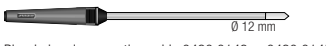

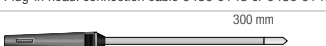
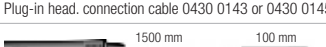

Probe type	Pressure	CO2 probe	CO2 probe
Meas. range	See pressure probes	0 to +1 Vol. % CO ₂	0 to +10000 ppm CO ₂
Accuracy ±1 digit	±0.1% of mv	See probe data	±(100 ppm CO ₂ ±3% of mv) (+5000 to +10000 ppm CO ₂) ±(500 ppm CO ₂ ±2% of mv) (0 to +5000 ppm CO ₂)
Resolution	0.001 hPa (Sonde 0638 1345) 0.001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

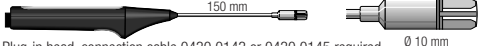


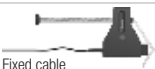
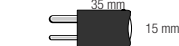

Probe type	CO probe		
Meas. range	0 to +500 ppm CO		
Accuracy ±1 digit	±5% of mv (+100 to +500 ppm CO) ±5 ppm CO (0 to +100 ppm CO)		
Resolution	1 ppm CO (0 to +500 ppm CO)		

Oper. temp.	0 to +50 °C	Battery life: 6-45 h (depending on probe) Mains conn. and batt. rech. in instr. Calculated humidity parameters: td, g/m ³ , g/kg pressure-compensated, J/g Calculated volume flow: m ³ /h (e.g. 0 to 99999 m ³ /h), m ³ /min, m ³ /s, l/s, cfm Calculated velocity values (density-compensated): 0 to 100 m/s; 0 to 99999 m ³ /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)
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	

Probes	Illustration	Probe type	Meas. range	Accuracy	Part no.
Vane probe, Ø 12 mm, can be attached to handle 0430 3545 or telescopic handle 0430 0941	 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 0430 3545 handle or 0430 0941 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 +40 m/s) ±(0.2 m/s ±2% of mv) (+40.1 to +50 m/s)	0635 9540
Vane/temperature probe, Ø 25 mm, can be attached to 0430 3545 handle or 0430 0941 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 0430 3545 or telescopic handle 0430 0941, for meas. 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 0430 3545 or telescopic handle 0430 0941, for measurements on ventilation outlets	 Ø 100 mm	Vane	+0.2 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	 150 mm Ø 4 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
Vane probe, Ø 16 mm, with telescopic handle, Tmax +60°C	 700 mm Ø 16 mm	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	 1100 mm Ø 60 mm	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	 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
Precision pressure probe, 100 Pa, measures differential pressure and velocities (in combination 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 combination 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 combination 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, for measuring flow velocity			Oper. temp. 0 to +600 °C		0635 2045
Pitot tube, 350 mm long, stainless steel, for measuring flow velocity			Oper. temp. 0 to +600 °C		0635 2145
Pitot tube, 300 mm long, stainless steel, for measuring flow velocity			Oper. temp. 0 to +600 °C		0635 2245
Pitot tube, 1000 mm long, stainless steel, for measuring flow velocity			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 EN 13779 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 ... +1 Vol. % CO ₂ 0 ... +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, for detecting CO in buildings and rooms			0 to +500 ppm CO	±5% of mv (+100.1 to +500 ppm CO) ±5 ppm CO (0 to +100 ppm CO)	0632 3331
More probes	Illustration	Meas. range	Accuracy	t90	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 0430 9715	 Fixed cable; Cable/length 3 m	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	 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) in the temperature range from +15 °C to +30 °C	±0.2 °C (+10 to +40 °C) ±0.4 °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 +100 °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

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 up to 2" in diameter	 Fixed cable	-60 to +130 °C	Class 2*	5 s	0600 4593
Spare meas. head for pipe wrap probe, TC Type K		-60 to +130 °C	Class 2*	5 s	0602 0092
Globe thermometer to measure radiant heat	 Fixed cable	Accuracy corresponds to ISO 7243, ISO 7726, DIN EN 27726, DIN 33403 requirements 0 to +120 °C	±0.5 °C (0 to +49.9 °C) ±1 °C (+50 to +120 °C)		0554 0670

*According to standard EN 60584-2, the accuracy of Classes 1 / 2 refer to -40 to +1000/+1200 °C.

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	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
Extension cable, 5 m long, between plug-in head cable and instrument PUR coating material	0409 0063
Connection hose, silicone, 5m long max. load 700 hPa (mbar)	0554 0440
Cover plugs for test holes (50 off)	0554 4001

Accessories for temperature probes	Part no.
Silicone heat paste (14g), T _{max} = +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 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

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 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
testo saline pots for control and humidity adjustment of humidity probes, 11.3 %RH and 75.3 %RH with adapter for humidity probe	0554 0660
Metal protection cage, Ø 12 mm for humidity probes for measurement in flow velocities of less than 10 m/s	0554 0755
Cap with wire mesh filter, Ø 12 mm	0554 0757
PTFE sintered filter, Ø 21 mm, for corrosive substances high humidity range (long-term measurements), high velocities	0554 0666
Sintered PTFE filter, Ø 12 mm, for corrosive media High humidity range (long-term measurements), high flow 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 higher flow velocities or in contaminated air	0554 0647
PTFE cap, Ø 5 mm, attachable, PTFE material, (5 off) PTFE dust protection, high humidity measurements, high flow speeds for humidity probe 0636 2130	0554 1031
PTFE sintered filter, Ø 12 mm, for corrosive substances high humidity range (non-stop measurements), high flow speeds	0554 0758

testo 400

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 for 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 EN 137729
- Assessment of volume flow measurements with calculation of total uncertainty of measurement in accordance with EN 12599 with VAC module (optional)

The reference measuring instrument for A/C and ventilation systems

- VAC module for evaluating the measurement directly on site with integrated inaccuracy calculation
- Clear graphics display
- 3 user defined function buttons
- Save up to max. 500,000 readings) or print at the touch of a button
- Mains connection/quick battery recharge
- Attachable printer (optional)
- Prints readings on site in a matter of seconds
- Data communication via PC
- User friendly operation with cursor via menu structure
- Integrated reading memory for up to 500,000 readings



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

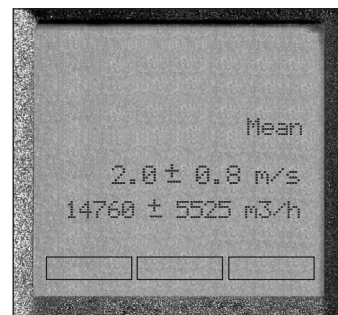
testo 400, multi-functional measuring instrument, incl. measurement value store up to 500,000 readings, VAC-module (determination of volume flow with error calculation), battery, Li-cell and calibration protocol

Can be used for:

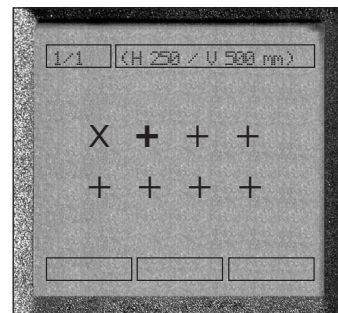
- Velocity, volume flow
- Humidity, pressure
- Temperature
- CO₂, rpm and current/voltage

Part no.

0563 4001



Assessment of measurement directly on location with integrated uncertainty calculation



The coordinates required for the grid measurement are shown in the instrument display. The depth information on the vane telescopic handle makes the task that much easier in practice.

Recommended Set
For fast measurements on VAC systems

- testo 400, multi-functional measuring instrument, incl. measurement value store up to 500,000 readings, VAC-module (determination of volume flow with error calculation), battery, Li-cell and calibration protocol (Part no. 0563 4001)
- ComSoft 3 - Professional with data management (Part no. 0554 0830)
- RS232 cable (Part no. 0409 0178)
- Bendable vane probe (can be bent by 90°), Ø 100 mm, attachable to handle 0430 3545 or telescopic handle 0430 0941, for measurements on ventilation outlets (Part no. 0635 9340)
- Vane/temperature probe, Ø 16 mm, attachable to 0430 3545 handle or 0430 0941 telescopic handle (Part no. 0635 9540)
- Professional telescopic handle for plug-in vane probes, max. 1 m long (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

The pro set for assessing workplaces subjected to heat

- testo 400, multi-functional measuring instrument, incl. measurement value store up to 500,000 readings, VAC-module (determination of volume flow with error calculation), 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. WGBT 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 0520 0181
for air/immersion probes, calibration points -8°C; 0°C; +40°C

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

- testo 400, multi-functional measuring instrument, incl. measurement value store up to 500,000 readings, VAC-module (determination of volume flow with error calculation), battery, Li-cell and calibration protocol (Part no. 0563 4001)
- Comfort level probe for measuring degree of turbulence, with telescopic handle and stand. Fulfills EN 13779 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 0632 1240
plug-in head, connection cable 0430 0143 or 0430 0145 required

Cable, 1.5 m long, connects probe with plug-in head to meas. instrument 0430 0143
PUR coating material

Standard ambient air probe up to +70°C 0636 9740
Measures all physical parameters in the psychrometric chart

Quick-action surface probe with sprung thermocouple strip, measuring 0604 0194
range short-term to +500°C

Cable, 1.5 m long, connects probe with plug-in head to meas. instrument 0430 0143
PUR coating material

Recommended Set
Laboratory fume cupboard probe

- testo 400, multi-functional measuring instrument, incl. measurement value store up to 500,000 readings, VAC-module (determination of volume flow with error calculation), battery, Li-cell and calibration protocol (Part no. 0563 4001)
- Mains unit 230 V/ 8 V/ 1 A, for instrument (European plug) (Part no. 0554 1084)
- Rech. batt. set for instr. (2 rech. 2.4V/1100mAh) (Part no. 0554 0196)
- Thermal anemometer probe, Ø 10 mm, w. telescopic handle, measures air flow in lab fume cupboards to DIN EN 14175 (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 flow speeds (in combination 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 EN 13779 requirements (Part no. 0628 0009)

We recommend:

ComSoft 3 - Professional with data management 0554 0830
incl. database, analysis and graphics function, data analysis, trend curve

RS232 cable 0409 0178
connects instrument to PC (1.8 m) for data transfer

Attachable printer (securely attached) including 1 roll of thermal paper and 0554 0570
batteries

SoftCase (protects instrument from impact) with carrier strap, magnetic 0516 0401
holder and probe holder

SoftCase for attachable printer (protects printer from dirt/impact) 0516 0411
protects from impact and falls

System case (aluminium) for measuring instrument, probes and accessories 0516 0410
probes in lid make it easy to find parts in case

DKD calibration certificate/Velocity for laboratory fume cupboard probe

ISO calibration certificate/Velocity for laboratory fume cupboard probe

The Pro Set for clean room systems

- testo 400, multi-functional measuring instrument, incl. measurement value store up to 500,000 readings, VAC-module (determination of volume flow with error calculation), 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 flow speeds (in combination with Pitot tube) (Part no. 0638 1347)
- Precision air probe (Part no. 0628 0017)
- Highly accurate reference humidity/temp. probe (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 0430 3545 or telescopic handle 0430 0941, for measurements on ventilation outlets (Part no. 0635 9340)
- Professional telescopic handle for plug-in vane probes, max. 1 m long (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)

testo 400

Accessories and Calibration Certificates

Accessories	Part no.
Accessories for measuring instrument	
Rech. batt. set for instr. (2 rech. 2.4V/1100mAh) selected for quick recharging in instrument	0554 0196
Lithium battery button cellCR2032 mignon type batteries for radio handle	0515 0028
Printer and Accessories	
Attachable printer (securely attached) including 1 roll of thermal paper and batteries	0554 0570
Testo fast printer with wireless infrared interface, 1 roll thermal paper and 4 AA batteries	0554 0549
Fast testo 575 printer, incl. 1 roll of thermal paper and batteries	0554 1775
infrared thermal line printer with graphics function	
External fast charger for 1-4 AA rech. batteries, incl. 4 Ni-MH rech. batteries with individual cell charging and charge control display, incl. impulse trickle charging, integrated discharge function, with built-in international mains plug, 100-240 V, 300 mA, 50/60 Hz	0554 0610
Mains unit 230 V/ 8 V/ 1 A, for instrument (European plug)	0554 1084
Spare thermal paper for printer (6 rolls)	0554 0569
Spare thermal paper for printer (6 rolls)	0554 0568
measurement data documentation legible for up to 10 years	
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
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, RS232 - Ethernet incl. software driver, mains unit facilitates data communication in network	0554 1711
System case	
System case (plastic) for measuring instrument, probes and accessories probes in lid make it easy to find parts in case (540 x 440 x 130 mm)	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 meas. instr. 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 Calibration points 11.3 %RH and 75.3 %RH at +25°C	0520 0006
ISO calibration certificate dewpoint two adjustment points -10/-40 °Ctd at 6 bar	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 -18°C to +70°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 diff. and pos. pressure; 11 measuring points distributed over the instr. meas. range	0520 0215
ISO calibration certificate/absolute pressure, 5 measurement points distributed over meas. range absolute pressure, accuracy 0.1 to 0.6 (% of fsv)	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	See probe data for system accuracy	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) ±(0.1 °C + 0.1% of mv) (remaining range)	±(0.3 °C + 0.1% of mv)	±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	CO ₂ 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)	±1 digit	±0.04 mA (0 (0554 0007) to +20 mA) See probe (0554 0528) data	±0.01 V (0 to +10 V)
Resolution			1 rpm	0.01 mA (0 to +20 mA)	0.01 V (0 to +10 V)

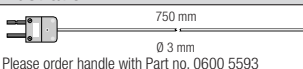
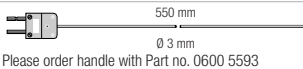
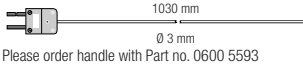
Oper. temp.	0 to +50 °C
Storage temp.	-25 to +60 °C
Display	LCD, 4 lines
Battery type	1,5 V AA
Battery life	18 h
PC	RS232 interface
Weight	500 g
Material/Housing	ABS
Warranty	3 years
Memory	500.000

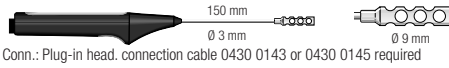
Memory space: 1 MB corresponding to approx. 500,000 readings
Other features: automatic probe recognition
Power: Battery/rech. battery, alternatively 8 V mains unit
Battery life in continuous operation with 2 T/C probes

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
Thermocouple, made of fibre-glass insulated thermal pipes, pack of 5	 Please order adapter 0600 1693	-200 to +400 °C	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
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
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
Adhesive thermocouple, pack of 2, carrier material: aluminium foil Is fixed at the measuring point using conventional adhesives or silicone heat paste 0554 0004	 Diameter extension 2 x 0.2 mm, 0.1 mm thick	-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
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
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
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 tip	 Conn.: Fixed cable	-200 to +1250 °C	Class 1*	60 s	0600 5993
Pipe wrap probe for pipes up to 2" in diameter	 Conn.: Fixed cable	-60 to +130 °C	Class 2*	5 s	0600 4593
Spare meas. head for pipe wrap probe, TC Type K	 35 mm	-60 to +130 °C	Class 2*	5 s	0602 0092

* According to standard EN 60584-2, the accuracy of Classes 1 / 2 refer to -40 to +1000/+1200 °C.


Probes Type K (NiCr-Ni)	Illustration	Meas. range	Accuracy	t99	Part no.
Plug-in measuring tip, 750mm long, flexible, for high temperatures, outer casing: stainless steel 1.4541	 750 mm Ø 3 mm Please order handle with Part no. 0600 5593	-200 to +900 °C	Class 1**	4 s	0600 5393
Plug-in measuring tip, 550mm long, flexible, for high temperatures, outer casing: Inconel 2.4816	 550 mm Ø 3 mm 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	 1030 mm Ø 3 mm Please order handle with Part no. 0600 5593	-200 to +1100 °C	Class 1**	4 s	0600 5893

Probes Pt100	Illustration	Meas. range	Accuracy	t99	Part no.
Standard air probe	 150 mm Ø 3 mm Conn.: Plug-in head, connection cable 0430 0143 or 0430 0145 required	-200... +600 °C	Class A***	75 s	0604 9773
Precision air probe	 150 mm Ø 3 mm 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	 150 mm Ø 4 mm Conn.: Plug-in head, connection cable 0430 0143 or 0430 0145 required	-50 to +400 °C	Class B***	40 s	0604 9973
Velcro probe for pipes with diameter of max. 75 mm	 280 mm Conn.: Fixed cable	-50 to +150 °C	Class B***	40 s	0628 0019
Standard immersion/penetration probe	 200 mm Ø 3 mm Conn.: Plug-in head, connection cable 0430 0143 or 0430 0145 required	Stainless Steel -200 to +400 °C	Class A***	20 s	0604 0273
Standard immersion/penetration probe	 200 mm Ø 3 mm Conn.: Plug-in head, connection cable 0430 0143 or 0430 0145 required	Nickel -200 to +600 °C	Class A***	20 s	0604 0274
Highly accurate immersion/penetration probe incl. certificate	 295 mm Ø 4 mm Conn.: Plug-in head, connection cable 0430 0143 or 0430 0145 required	Stainless Steel -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	 200 mm Ø 3 mm 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	 1000 mm Ø 3.5 mm Conn.: Plug-in head, connection cable 0430 0143 or 0430 0145 required	50 mm Ø 6 mm -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	 150 mm Ø 3.5 mm Conn.: Fixed cable	Ø 3 mm -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









**According to standard EN 60584-2, the accuracy of Class 1 refers to -40 to +1000 °C.

***According to standard EN 60751, the accuracy of Class A and B refer to -200 to +600 °C.






Probes NTC	Illustration	Meas. range	Accuracy	t99	Part no.
Highly accurate air probe for air and gas temperature measurements with bare, mechanically protected sensor	 150 mm Ø 9 mm Conn.: Fixed cable	-40 to +130 °C	To UNI curve	60 s	0610 9714
Globe thermometer to measure radiant heat	 Ø 150 mm Conn.: Fixed cable	0 to +120 °C	±0.5 °C (0 to +49.9 °C) ±1 °C (+50 to +120 °C) Accuracy corresponds to ISO 7243, ISO 7726, DIN EN 27726, DIN 33403 requirements		0554 0670

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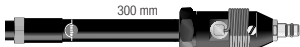


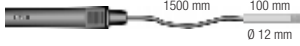












Suitable probes at a glance

More probes	Illustration	Meas. range	Accuracy	Part no.
Ambient CO probe, for detecting CO in buildings and rooms	 Conn.: Fixed cable, 1.5 m	0 to +500 ppm CO	±5% of mv (+100.1 to +500 ppm CO) ±5 ppm CO (0 to +100 ppm CO)	0632 3331
CO ₂ 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 ... +1 Vol. % CO ₂ 0 ... +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 Channels: 1 channel, transmitter connection via terminal board Auxiliary energy output: 18V DC ± 20% max. connection load: 30 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
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), T _{max} = +260°C, improves heat transfer in surface probes	0554 0004
Spare measuring tip for smelting probe	0363 1712





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 0430 9715 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	 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) * ±0.2 °C (+10 to +40 °C) ±0.4 °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 +15°C to +30°C

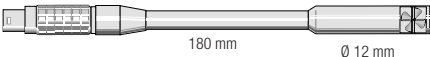
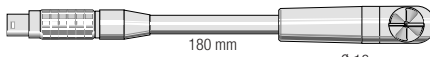
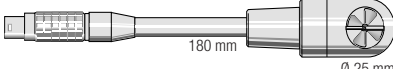

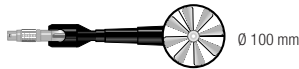


Probes Process humidity	Illustration	Meas. range	Accuracy	t99	Part no.		
Standard pressure dew point probe for measurements in compressed air systems	 Plug-in head, connection cable 0430 0143 or 0430 0145 required	0 to +100 %RH -30 to +50 °C tpd	±0.9 °C tpd (+0.1 to +50 °C tpd) ±1 °C tpd (-4.9 to 0 °C 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 +100 °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	t99	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	t99	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	Meas. range	Accuracy	Overload	Static pressure	Zeroing	Part no.
Precision pressure probe, 100 Pa, in robust metal housing with impact protection, incl. magnet for fast attachment, to measure differential pressure and flow speeds (in combination 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)	50 hPa	100 hPa	up to 20 Pa	0638 1347
Pressure probe, 10 hPa, in robust metal housing with impact protection incl. magnet for fast attachment, to measure differential pressure and flow speeds (in combination with Pitot tube)	 Plug-in head, connection cable 0430 0143 or 0430 0145 required	0 to +10 hPa	±0.03 hPa	50 hPa	1000 hPa	to 0,4 hPa	0638 1447
Pressure probe, 100 hPa, in robust metal housing with impact protection, incl. magnet for fast attachment, to measure differential pressure and flow speeds (in combination 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)	300 hPa	1000 hPa	to 4 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)	2000 hPa	1000 hPa	to 20 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)	3000 hPa	1000 hPa	to 40 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)	4000 hPa	—	—	0638 1847

testo 400
Suitable probes at a glance


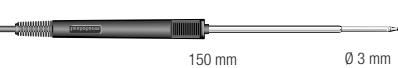



Relative pressure probes	Illustration	Meas. range	Accuracy	Overload	Zeroing	Part no.
Low pressure probe, refrigerant-proof stainless steel, up to 10 bar		-1 to +10 bar	±1% of fsv Overload 25 bar	25 bar	to 0,1 bar	0638 1741
	Plug-in head, connection cable 0409 0202 required					screw-in thread 7/16" UNF
High pressure probe, refrigerant-proof stainless steel, up to 30 bar		-1 to +30 bar	±1% of fsv Overload 120 bar	120 bar	to 0,3 bar	0638 1841
	Plug-in head, connection cable 0409 0202 required					screw-in thread 7/16" UNF
High pressure probe, refrigerant-proof stainless steel, up to 40 bar		-1 to +40 bar	±1% of fsv Overload 120 bar	120 bar	to 0,4 bar	0638 1941
	Plug-in head, connection cable 0409 0202 required					screw-in thread 7/16" UNF
High pressure probe, refrigerant-proof stainless steel, up to 100 bar		-1 to +100 bar	±1% of fsv Overload 250 bar	250 bar	to 1 bar	0638 2041
	Plug-in head, connection cable 0409 0202 required					Screw-in thread 7/16" UNF
High pressure probe, refrigerant-proof stainless steel, up to 400 bar		-1 to +400 bar	±1% of fsv Overload 600 bar	600 bar	to 4 bar	0638 2141
	Plug-in head, connection cable 0409 0202 required					Screw-in thread 7/16" UNF




Caps for humidity probes Ø 12mm and 21mm	Illustration	Part no.
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.		0636 9740, 0636 9715
Cap with wire mesh filter, Ø 12 mm		All humidity probes with Ø 12 mm
PTFE 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 flow velocities		All humidity probes with Ø 21 mm
Sintered PTFE filter, Ø 12 mm material PTFE. Favourable behaviour in condensation, water repellent, high resistance to aggressive media. Applications: Compressed air measurements, high humidity range (long-term measurements), high flow velocities.		0636 9769, 0636 9740, 0636 9715
PTFE 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 flow velocities		0628 0021, 0628 0022, 0636 2140, 0636 2142
Stainless steel sintered cap, Ø 21 mm, can be screwed onto humidity probe protection in case of high mechanical load and high velocities		All humidity probes Ø 21 mm
Stainless steel sintered cap, Ø 12 mm, material: stainless steel V2A. Very rugged, suitable for penetration, can be cleaned with compressed air, mechanical sensor protection. Applications: High mechanical loads, high flow velocities.		0636 9740, 0636 9715
PTFE cap, Ø 5 mm, attachable, PTFE material, (5 off). Applications: dust protection, high humidity level measurements, high flow velocities		0636 2130

Accessories: Humidity probes	Part no.	Accessories: Pressure probes	Part no.
Cable, 1.5 m long, connects probe with plug-in head to meas. instrument PUR coating material	0430 0143	Connection cable, 2.5 m long, for pressure probes 0638 1741/1841/1941	0409 0202
Cable, 5 m long, connects probe with plug-in head to measuring instrument PUR coating material	0430 0145	Cable, 1.5 m long, connects probe with plug-in head to meas. instrument PUR coating material	0430 0143
Extension cable, 5 m long, between plug-in head cable and instrument PUR coating material	0409 0063	Cable, 5 m long, connects probe with plug-in head to measuring instrument PUR coating material	0430 0145
Telescopic handle, max. 1 m, for probe with plug-in head cable: 2.5 m long, PUR coating material	0430 0144	Connection hose, silicone, 5m long max. load 700 hPa (mbar)	0554 0440
Adapter for surface humidity measurement, for humidity probes Ø 12mm locates damp spots on walls, for example	0628 0012	Connection hose set, 2 x 1 m, coiled, incl. 1/8" screw connection pressure-tight up to 20 bar, for probe 0638 1647	0554 0441
Cap for bore holes, for humidity probe Ø 12 mm Measures equilibrium moisture in bore holes	0554 2140		
testo saline pots for control and humidity adjustment of humidity probes, 11.3 %RH and 75.3 %RH with adapter for humidity probe	0554 0660		

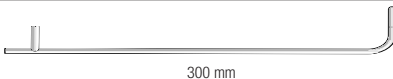


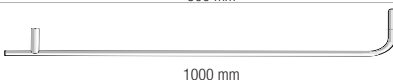
Vane probes	Illustration	Probe type	Meas. range	Accuracy	Part no.
Vane probe, Ø 12 mm, can be attached to handle 0430 3545 or telescopic handle 0430 0941	 180 mm Ø 12 mm	Vane	+0.6 to +20 m/s Oper. temp. -30 to +140 °C	±(0.2 m/s ±1% of mv) (+0.6 to +20 m/s)	0635 9443
Vane/temperature probe, Ø 16 mm, attachable to 0430 3545 handle or 0430 0941 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 +40 m/s) ±(0.2 m/s ±2% of mv) (+40.1 to +50 m/s)	0635 9540
Vane/temperature probe, Ø 25 mm, can be attached to 0430 3545 handle or 0430 0941 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 0430 3545 or telescopic handle 0430 0941, for meas. 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 0430 3545 or telescopic handle 0430 0941, for measurements on ventilation outlets	 Ø 100 mm	Vane	+0.2 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)	 250 mm Ø 16 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	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

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	 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 probe, Ø 10 mm, w. telescopic handle, measures air flow in lab fume cupboards to DIN EN 14175	 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

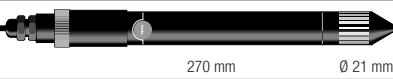


Differential pressure probes	Illustration	Probe type	Meas. range	Accuracy	Overload	Static pressure	Zeroing	Part no.
Precision pressure probe, 100 Pa, in robust metal housing with impact protection, incl. magnet for fast attachment, to measure differential pressure and flow speeds (in combination with Pitot tube)		Differential pressure probe	0 to +100 Pa	±(0.3 Pa ±0.5% of mv)	50 hPa	100 hPa	to 20 Pa	0638 1347
Pressure probe, 10 hPa, in robust metal housing with impact protection incl. magnet for fast attachment, to measure differential pressure and flow speeds (in combination with Pitot tube)		Differential pressure probe	0 to +10 hPa	±0.03 hPa	50 hPa	1000 hPa	to 0.4 hPa	0638 1447
Pressure probe, 100 hPa, in robust metal housing with impact protection, incl. magnet for fast attachment, to measure differential pressure and flow speeds (in combination 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)	300 hPa	1000 hPa	to 4 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, for measuring flow velocity	 300 mm Ø 4 mm	Oper. temp. 0 to +600 °C	0635 2245
Pitot tube, 350 mm long, stainless steel, for measuring flow velocity	 350 mm Ø 7 mm	Oper. temp. 0 to +600 °C	0635 2145
Pitot tube, 500 mm long, stainless steel, for measuring flow velocity	 500 mm Ø 7 mm	Oper. temp. 0 to +600 °C	0635 2045
Pitot tube, 1000 mm long, stainless steel, for measuring flow velocity	 1000 mm Ø 7 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 flow speed and temperature, for pressure probes 0638 1347/..1447/..1547	 360 mm Ø 8 mm	Type K (NiCr-Ni)	-40 to +600 °C	0635 2040
Pitot tube, stainless steel, 500 mm long, measures flow speed and temperature, for pressure probes 0638 1347/..1447/..1547	 500 mm Ø 8 mm	Type K (NiCr-Ni)	-40 to +600 °C	0635 2140
Pitot tube, stainless steel, 1000 mm long, measures flow speed and temperature, for pressure probes 0638 1347/..1447/..1547	 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
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	 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 EN 13779 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		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.
Cable, 1.5 m long, connects probe with plug-in head to meas. instrument PUR coating material	0430 0143

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.

Control unit displays measurement data and controls the measurement system, incl. built-in printer, pressure measurement 40/200 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

From measuring instrument to measurement system, testo 454



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

Data logging at several sites

The Control Unit can be connected to several loggers via connection cables for the Testo databus. An overview of the measurement data from several processing sites, e.g. in the monitoring of production sequences, is thus possible.

- Control unit displays measurement data and controls the measurement system, incl. built-in printer, pressure measurement 40/200 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 supply for power box (110/230 V; 50/60 Hz, 12 V, 3 A) (Part no. 0554 1143)
- ComSoft 3 for data management, incl. RS 232 connection cable (Part no. 0554 0841)

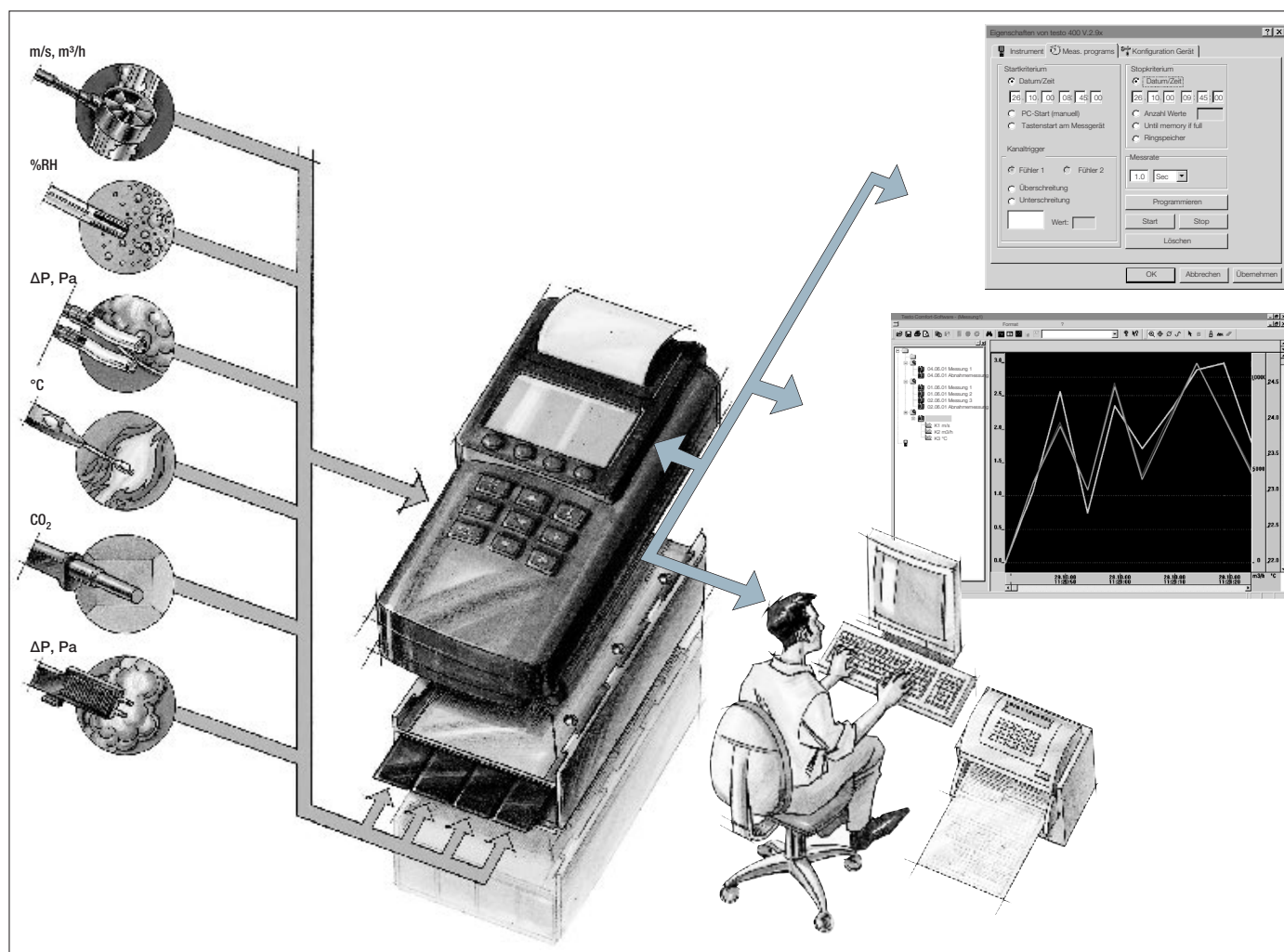
Probes and accessories of your choice

We recommend:

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

testo 454

Measurement on site


Measuring on site

Efficient on site measurements require a mobile instrument with enough measuring channels.

The control unit

The control unit is a portable and robust measuring instrument with a user defined probe socket and an integrated differential pressure probe. Convenient measuring functions such as timed/multi-point mean calculations and measurement programs simplify the measuring task. You can save up to 250,000 readings directly in the selected locations and then print them on location on the built-in printer.

Loggers

4 additional probe sockets are added with each clip-on logger attached to the control unit. Each logger provides 250,000 additional readings via the memory integrated in the logger.

Up to 20 loggers can be connected to the control unit yielding over 5 million readings!

Parameters

A wide range of probes are available for accurate measurement in a variety of applications:

- Temperature with surface, immersion, penetration, air or precision probes
- Humidity with ambient air conditions, duct and reference probes, material moisture probes and pressure dew point probes
- Velocity and volume flow with vanes, hot wire, hot bulb probes and Pitot tubes
- Indoor Air Quality using CO₂ probe and comfort level probe
- Pressure with differential/absolute/low/high pressure probes
- rpm
- Current, voltage

Tour plan

The tour plan enables efficient measurement on location. All of the planned locations on a tour are saved in the tour plan using Comsoft software and are transmitted to the measuring instrument. In this way, the duct cross-section or the required value for a location can be defined beforehand in your office. Definitions can, of course, be corrected or initialised using testo 454.

Defining measurement programs

Complex measurement tasks require structure. Comsoft software offers a wide range of possibilities for program start, measuring cycle and program finish. In this way, measurement programs can be started at a specified time, manually, by exceeding a value or via an external trigger signal. An easy-to-use user guide guarantees reliable logger operation.

Online measurement

In addition to displaying readings in diagrams, tables and histograms, display on a system graphic (e.g. flow diagram or system photo), produced by the user, is also an option for online measurement.

Data analysis

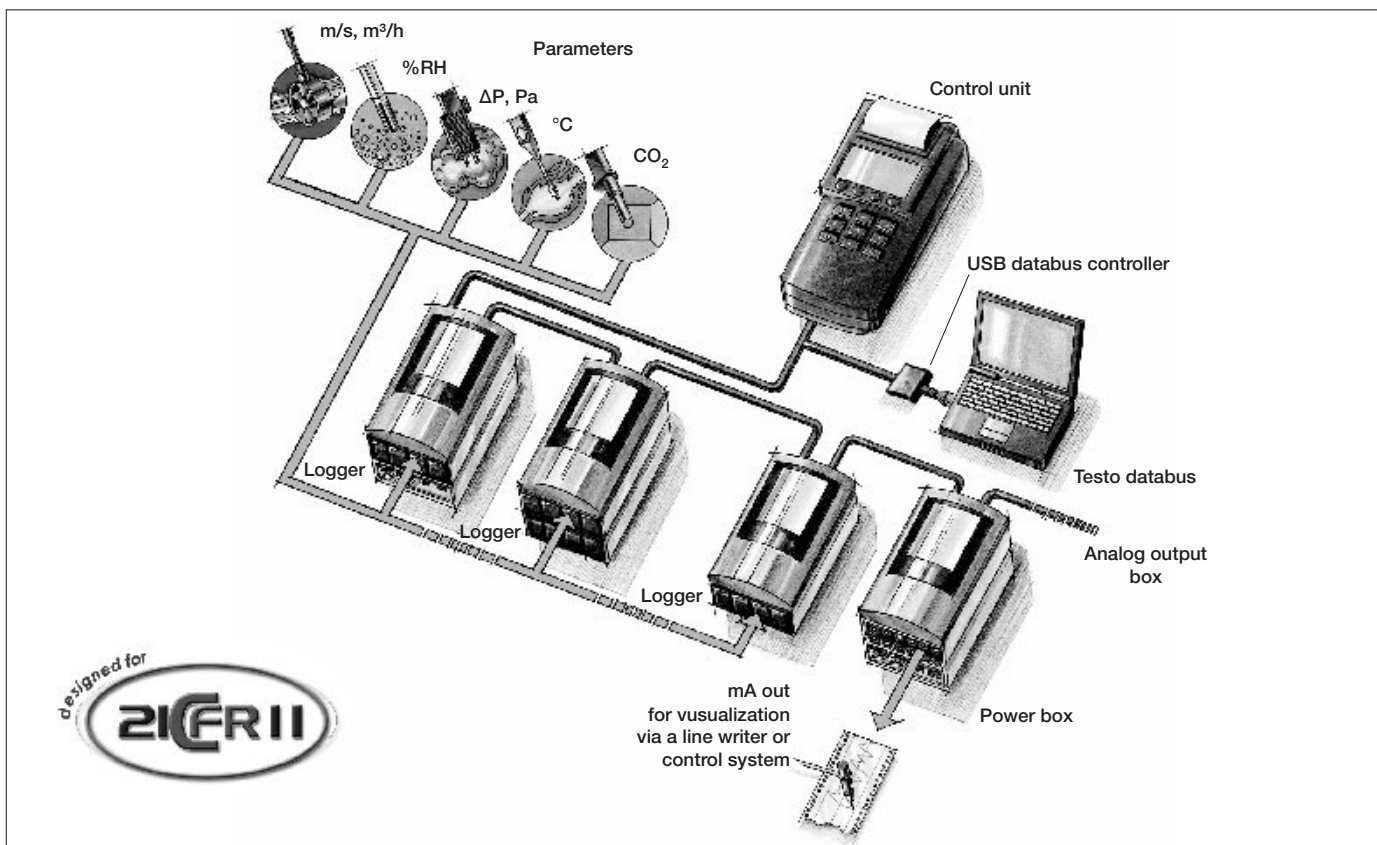
Data analysis is carried out using a wide range of display types and calculations such as mathematical smoothing, statistical functions, limit display.

Documentation

Protocols for the applications can be put together as required. Only important values should be documented.

Filing

The tree structure and directory and location set up process enable easy data management.



The concept

testo 454 is the system for flexible measurement of several measurement data.

Outstanding advantages:

- Simultaneous measurement at several measurement points
- User defined probe sockets
- 1 to more than 200 measurement channels
- Data transmission via Testo databus
- Modular layout of system components

Parameters

A wide range of probes are available for accurate measurement in the respective applications:

- Temperature with surface, immersion penetration, air or precision probes
- Humidity with room air conditions, duct and precision probes, material moisture probes and pressure dew point probes
- Velocity and volume flow with vanes, hot wire, hot bulb probes and Pitot tubes
- Indoor Air Quality using CO₂ probe or comfort level probe
- Pressure with differential/absolut/low/high pressure probes
- rpm
- Current, voltage

Logger

The data logger measures and saves readings without any connection to the control unit. Up to 4 more of any of the ambient air probes can be connected to this logger. Additional probe connection options are made possible by connecting more loggers. The following features give you flexibility when measuring data:

- Variable program start
- Adjustable measuring cycle
- Number of readings
- Program cancel can be defined

The measurement program can be started as follows:

- At a certain time or date
- Manually via function buttons
- If certain values are exceeded
- Via an event trigger socket signal

The exceeded alarm values can be evaluated for display or control via a relay.

Control unit

The **control unit** displays the measurement data and controls the **testo 454** measuring system. The following parameters are saved in the control unit:

- Locations
- Measurement programs
- Limits
- Precision adjustment
- System configuration.

Efficient operation of the measuring system is guaranteed by the probe dependent menu guide, for example, or the clear display of readings with names. The control unit is connected via the serial interface in the laptop/PC.

Additionally the control unit has all options for mobile use of a hand-held instrument.

Testo databus controller

The decentral loggers can be read out and controlled, without a control unit, via a PC plug-in card (PCMCIA) for laptop/PC. It is possible to display the readings from several loggers clearly and conveniently in one view during online measurement. The data and

readings relevant to the system are saved in the laptop/PC and loggers.

Testo databus

Communication between control unit/logger, PC plug-in card/logger and other boxes takes place via the Testo databus. Using the Testo databus, you have the option of operating loggers at different locations. Distances of up to several hundred metres pose no problem for the Testo databus.

Analog output box

The logger readings are output as a current signal (4 to 20 mA signal) for display units or output on an analog recorder.

Power box

The power box is used to supply power to the loggers, control unit, analog output box and the Testo databus thus increasing the operating life in the field.

**Recommended Set****Data measurement at several sites using the laptop/PC**

- Databus controller with USB connection incl. software ComSoft 3, cable for Testo databus, USB cable and terminal plug (Part no. 0554 0589)
- 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)
- Mains 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)
- 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)
- Mains 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 supply for power box (110/230 V; 50/60 Hz, 12 V, 3 A) (Part no. 0554 1143)

Ordering data: Measurement system/Accessories**Part no.****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

Databus controller with USB connection incl. software ComSoft 3, cable for Testo databus, USB cable and terminal plug

0554 0589

Databus controller with USB connection incl. software ComSoft 3 for requirements according to 21 CFR 11, cable for Testo databus, USB cable and terminal plug

0554 0599

Accessories

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

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 measurement system, incl. built-in printer, pressure measurement 40/200 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

Logger, measures and saves (max. 250,000 readings), incl. 4 user defined probe sockets, alarm output/event trigger socket, stand/wall holder

0577 4540

External fast charger for 1-4 AA rech. batteries, incl. 4 Ni-MH rech. batteries with individual cell charging and charge control display, incl. impulse trickle charging, integrated discharge function, with built-in international mains plug, 100-240 V, 300 mA, 50/60 Hz

0554 0610

Testo rechargeable battery pack NiMH for control unit, logger

0515 0097

Mains 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

0554 0845

Power box, connected to control unit to increase field operating life and supply power to Testo data bus

0554 1045

Power supply 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

Calibration Certificates	Part no.
Calibration certificates/temperature	
ISO calibration certificate/temperature temperature probe; calibration points -18°C; 0°C; +60°C per channel/instrument	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 meas. instr. with surface probe; calibration points +60°C; +120°C; +180°C	0520 0071
DKD calibration certificate/temperature, Temperature probe; cal. points -20°C; 0°C; +60°C (-4 °F, 92 °F, 140 °F); per channel/instrument	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, Calibration points freely selectable from 5 to 95 %RH at +15 to +35 °C/+59 to +95 °F or -18 to +80 °C/-0.4 to +176 °F	0520 0066
ISO calibration certificate humidity calibration points 11.3 %RH and 75.3 %RH at +25 °C/+77 °F; per channel/instrument	0520 0076
ISO calibration certificate dewpoint two adjustment points -10/-40 °Ctd at 6 bar	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 data logger; cal. points 11.3%RH and 75.3%RH at +25°C; per channel/instrument	0520 0246
DKD calibration certificate/humidity, Cal. points freely selectable from 5 to 95%RH at +25°/+77 °F C or +5 to +70°C/+41 to +158 °F	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	Part no.
Calibration certificates/pressure	
ISO calibration certificate/pressure differential pressure; 5 points distributed over meas. range	0520 0005
DKD calibration certificate/pressure diff. and pos. pressure; 6 meas. points distributed over meas. range (>0.6% of fsv)	0520 0225
ISO calibration certificate/pressure differential pressure, accuracy 0.1 to 0.6 (% of fsv)	0520 0025
DKD calibration certificate/pressure diff. and pos. pressure; 11 measuring points distributed over the instr. meas. range	0520 0215
ISO calibration certificate/absolute pressure, 5 measurement points distributed over meas. range absolute pressure, accuracy 0.1 to 0.6 (% of fsv)	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	Pt100 with probe 0614 0240
Meas. range	0 to +60 m/s	0 to +20 m/s	0 to +100 %RH	10 to 30000 hPa	-40 to +300 °C
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	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 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)	0.001 °C (-9.999 to +99.999 °C) 0.01 °C (-40.00 to -10.00 °C) 0.01 °C (+100.00 to +300.00 °C)

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	0.001 °C (-9.999 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		±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	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 readings	250000 readings			
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

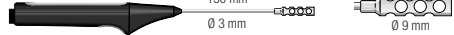
Air probes
Probes NTC

Highly accurate air probe for air and gas temperature measurements with bare, mechanically protected sensor


Illustration	Meas. range	Accuracy	t99	Part no.
 150 mm Ø 9 mm	-40 to +130 °C	To UNI curve	60 s	0610 9714

Probes Pt100

Standard air probe

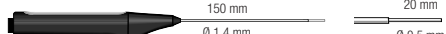
Illustration	Meas. range	Accuracy	t99	Part no.
 150 mm Ø 3 mm Ø 9 mm Conn.: Plug-in head, connection cable 0430 0143 or 0430 0145 required	-200... +600 °C	Class A**	75 s	0604 9773

Precision air probe


Illustration	Meas. range	Accuracy	t99	Part no.
 150 mm Ø 3 mm Ø 9 mm 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

Probes Type K (NiCr-Ni)

Super quick-action immersion/penetration probe for measurements in gases and liquids with a low-mass tip

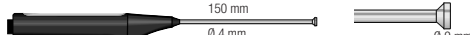
Illustration	Meas. range	Accuracy	t99	Part no.
 150 mm Ø 1.4 mm 20 mm Ø 0.5 mm Conn.: Plug-in head, connection cable 0430 0143 or 0430 0145 required	-200 to +600 °C	Class 1*	1 s	0604 9794

Thermocouple, made of fibre-glass insulated thermal pipes, pack of 5

Illustration	Meas. range	Accuracy	t99	Part no.
 2000 mm 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


Surface probes
Probes Pt100

Robust surface probe


Illustration	Meas. range	Accuracy	t99	Part no.
 150 mm Ø 4 mm Ø 9 mm Conn.: Plug-in head, connection cable 0430 0143 or 0430 0145 required	-50 to +400 °C	Class B**	40 s	0604 9973

Probes Type K (NiCr-Ni)

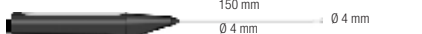
Quick-action surface probe with sprung thermocouple strip, measuring range short-term to +500°C

Illustration	Meas. range	Accuracy	t99	Part no.
 150 mm Ø 10 mm Conn.: Plug-in head, connection cable 0430 0143 or 0430 0145 required	-200 to +300 °C	Class 2*	3 s	0604 0194

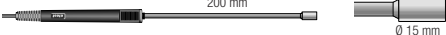
Super quick-action surface probe, probe tip at 90° angle, with sprung thermocouple strip

Illustration	Meas. range	Accuracy	t99	Part no.
 100 mm 50 mm Ø 10 mm 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

Illustration	Meas. range	Accuracy	t99	Part no.
 150 mm Ø 4 mm Ø 4 mm Conn.: Plug-in head, connection cable 0430 0143 or 0430 0145 required	-200 to +600 °C	Class 1*	25 s	0604 9993


Robust surface probe with sprung thermocouple strip for high temperature range up to +700°C

Illustration	Meas. range	Accuracy	t99	Part no.
 200 mm Ø 15 mm 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

Illustration	Meas. range	Accuracy	t99	Part no.
 274 mm Ø 33 mm 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

Illustration	Meas. range	Accuracy	t99	Part no.
 35 mm Ø 20 mm 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

Illustration	Meas. range	Accuracy	t99	Part no.
 75 mm Ø 21 mm Conn.: Fixed cable	-50 to +400 °C	Class 2*		0600 4893

Adhesive thermocouple, pack of 2, carrier material: aluminium foil




Illustration	Meas. range	Accuracy	t99	Part no.
 Diameter extension 2 x 0.2 mm, 0.1 mm thick	-200 to +200 °C	Class 1*		0644 1607

Is fixed at the measuring point using conventional adhesives or silicone heat paste 0554 0004





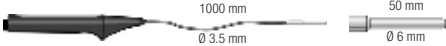
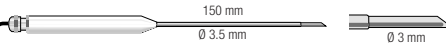



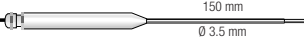

* According to standard EN 60584-2, the accuracy of Classes 1 / 2 refer to -40 to +1000/+1200 °C.

** According to standard EN 60751, the accuracy of Class A and B refer to -200 to +600 °C.

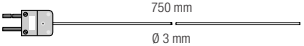
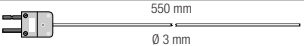
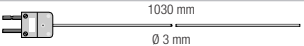
testo 454
Suitable probes at a glance
Pipe wrap probes

Probes Pt100	Illustration	Meas. range	Accuracy	t ₉₉	Part no.
Velcro probe for pipes with diameter of max. 75 mm	 280 mm Conn.: Fixed cable	-50 to +150 °C	Class B**	40 s	0628 0019
Probes Type K (NiCr-Ni)	Illustration	Meas. range	Accuracy	t ₉₉	Part no.
Pipe wrap probe for pipes up to 2" in diameter	 15 mm Conn.: Fixed cable, 1.5 m	-60 to +130 °C	Class 2*	5 s	0600 4593
Spare meas. head for pipe wrap probe, TC Type K	 15 mm 35 mm	-60 to +130 °C	Class 2*	5 s	0602 0092

Immers./penetr. probes







Probes Pt100	Illustration	Meas. range	Accuracy	t ₉₉	Part no.
Standard immersion/penetration probe	 200 mm Ø 3 mm Stainless Steel 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	 200 mm Ø 3 mm Nickel 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	 295 mm Ø 4 mm Stainless Steel 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	 200 mm Ø 3 mm 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	 1000 mm Ø 3.5 mm 50 mm Ø 6 mm 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	 150 mm Ø 3.5 mm Ø 3 mm Conn.: Fixed cable, 1.5 m	-200 to +400 °C	Class A**	30 s	0604 2573
Probes Type K (NiCr-Ni)	Illustration	Meas. range	Accuracy	t ₉₉	Part no.
Fast response immersion/penetration probe	 150 mm Ø 3 mm Conn.: Plug-in head, connection cable 0430 0143 or 0430 0145 required	-200 to +400 °C	Class 1*	3 s	0604 0293
Super quick-action immersion/penetration probe for measurements in liquids	 150 mm Ø 1.5 mm Conn.: 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 high temperatures	 470 mm Ø 1.5 mm Conn.: Plug-in head, connection cable 0430 0143 or 0430 0145 required	-200 to +1100 °C	Class 1*	1 s	0604 0593
Robust immersion/penetration probe made of V4A stainless steel, waterproof and oven-proof, e.g. for the food sector	 150 mm Ø 3.5 mm Ø 3 mm Conn.: Fixed cable, 1.5 m	-200 to +400 °C	Class 1*	3 s	0600 2593
Smelting probe for measurements in non-ferrous melting baths, with exchangeable measuring tip	 1100 mm Ø 6.5 mm Conn.: Fixed cable, 1.5 m	-200 to +1250 °C	Class 1*	60 s	0600 5993

Immers./penetr. probes






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	 750 mm Ø 3 mm Please order handle with Part no. 0600 5593	-200 to +900 °C	Class 1*	4 s	0600 5393
Plug-in measuring tip, 550mm long, flexible, for high temperatures, outer casing: Inconel 2.4816	 550 mm Ø 3 mm 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	 1030 mm Ø 3 mm Please order handle with Part no. 0600 5593	-200 to +1100 °C	Class 1*	4 s	0600 5893

* According to standard EN 60584-2, the accuracy of Classes 1 / 2 refer to -40 to +1000/+1200 °C.

** According to standard EN 60751, the accuracy of Class A and B refer to -200 to +600 °C.





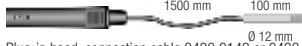










Other temperature probes	Illustration	Meas. range	Accuracy	Part no.
Globe thermometer to measure radiant heat	 Ø 150 mm Conn.: Fixed cable	0 to +120 °C	±0.5 °C (0 to +49.9 °C) ±1 °C (+50 to +120 °C) Accuracy corresponds to ISO 7243, ISO 7726, DIN EN 27726, DIN 33403 requirements	0554 0670
More probes	Illustration	Meas. range	Accuracy	Part no.
Ambient CO probe, for detecting CO in buildings and rooms		0 to +500 ppm CO	±5% of mv (+100.1 to +500 ppm CO) ±5 ppm CO (0 to +100 ppm CO)	0632 3331
CO ₂ 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 ... +1 Vol. % CO ₂ 0 ... +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		0/4 to 20 mA Channels: 1 channel, transmitter connection via terminal board Auxiliary energy output: 18V DC ± 20% max. connection load: 30 mA	±0.04 mA	0554 0528 Conn.: Plug-in head, connection cable 0430 0143 or 0430 0145 required




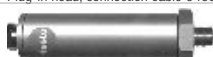
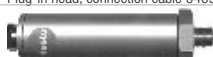
Accessories	Part no.
Cable, 1.5 m long, connects probe with plug-in head to meas. instrument, PUR coating material	0430 0143
Cable, 5 m long, connects probe with plug-in head to measuring instrument, PUR coating material	0430 0145
Extension cable, 5 m long, between plug-in head cable and instrument, 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
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), T _{max} = +260°C, improves heat transfer in surface probes	0554 0004
Spare measuring tip for smelting probe	0363 1712








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 0430 9715 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	 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) ±0.2 °C (+10 to +40 °C) ±0.4 °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 +15°C to +30°C

testo 454
Suitable probes at a glance

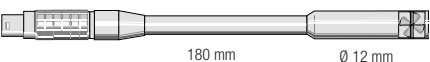

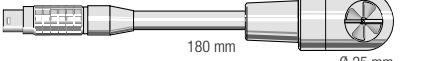

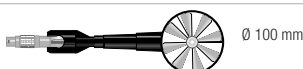

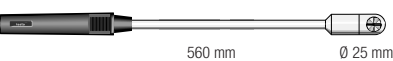
Probes Process humidity	Illustration	Meas. range	Accuracy	t99	Part no.		
Standard pressure dew point probe for measurements in compressed air systems	 Plug-in head, connection cable 0430 0143 or 0430 0145 required	0 to +100 %RH -30 to +50 °C tpd		±0.9 °C tpd (+0.1 to +50 °C tpd) ±1 °C tpd (-4.9 to 0 °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 +100 °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	t99	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	
Probes aw value	Illustration	Meas. range	Accuracy	t99	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	 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	Meas. range	Accuracy	Overload	Static pressure	Zeroing	Part no.
Precision pressure probe, 100 Pa, in robust metal housing with impact protection, incl. magnet for fast attachment, to measure differential pressure and flow speeds (in combination 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)	50 hPa	100 hPa	to 20 Pa	0638 1347
Pressure probe, 10 hPa, in robust metal housing with impact protection incl. magnet for fast attachment, to measure differential pressure and flow speeds (in combination with Pitot tube)	 Plug-in head, connection cable 0430 0143 or 0430 0145 required	0 to +10 hPa	±0.03 hPa	50 hPa	1000 hPa	to 0,4 hPa	0638 1447
Pressure probe, 100 hPa, in robust metal housing with impact protection, incl. magnet for fast attachment, to measure differential pressure and flow speeds (in combination 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)	300 hPa	1000 hPa	to 4 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)	2000 hPa	1000 hPa	to 20 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)	3000 hPa	1000 hPa	to 40 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)	4000 hPa	–	–	0638 1847

Relative pressure probe	Illustration	Meas. range	Accuracy	Overload	Zeroing	Part no.
Low pressure probe, refrigerant-proof stainless steel, up to 10 bar		-1 to +10 bar	±1% of fsv Overload 25 bar	25 bar	to 0,1 bar	0638 1741 screw-in thread 7/16" UNF
High pressure probe, refrigerant-proof stainless steel, up to 30 bar		-1 to +30 bar	±1% of fsv Overload 120 bar	120 bar	to 0,3 bar	0638 1841 screw-in thread 7/16" UNF
High pressure probe, refrigerant-proof stainless steel, up to 40 bar		-1 to +40 bar	±1% of fsv Overload 120 bar	120 bar	to 0,4 bar	0638 1941 screw-in thread 7/16" UNF
High pressure probe, refrigerant-proof stainless steel, up to 100 bar		-1 to +100 bar	±1% of fsv Overload 250 bar	250 bar	to 1 bar	0638 2041 Screw-in thread 7/16" UNF
High pressure probe, refrigerant-proof stainless steel, up to 400 bar		-1 to +400 bar	±1% of fsv Overload 600 bar	600 bar	to 4 bar	0638 2141 Screw-in thread 7/16" UNF

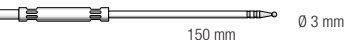


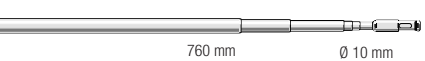
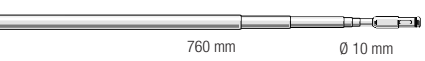
Caps for humidity probes Ø 12mm and 21mm	Illustration	Part no.
Metal protection cage, Ø 12 mm for humidity probes, material: stainless steel V4A. Quick adjustment time, robust and temperature-proof. Used when measuring velocities of less than 10 m/s.		0636 9740, 0636 9715 0554 0755
Cap with wire mesh filter, Ø 12 mm		All humidity probes with Ø 12 mm 0554 0757
PTFE 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 flow velocities		All humidity probes with Ø 21 mm 0554 0666
Sintered PTFE filter, Ø 12 mm material PTFE. Favourable behaviour in condensation, water repellent, high resistance to aggressive media. Applications: Compressed air measurements, high humidity range (long-term measurements), high flow velocities.		0636 9740, 0636 9715 0554 0756
PTFE 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 flow velocities		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 flow velocities.		All humidity probes Ø 21 mm 0554 0640
Stainless steel sintered cap, Ø 12 mm, material: stainless steel V2A. Very rugged, suitable for penetration, can be cleaned with compressed air, mechanical sensor protection. Applications: High mechanical loads, high flow velocities.		0636 9740, 0636 9715 0554 0647
PTFE cap, Ø 5 mm, attachable, PTFE material, (5 off). Applications: dust protection, high humidity level measurements, high flow velocities		0636 2130 0554 1031

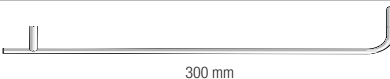


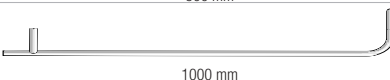
Accessories: Humidity probes	Part no.	Accessories: Pressure probes	Part no.
Cable, 1.5 m long, connects probe with plug-in head to meas. instrument PUR coating material	0430 0143	Connection cable, 2.5 m long, for pressure probes 0638 1741/1841/1941	0409 0202
Cable, 5 m long, connects probe with plug-in head to measuring instrument PUR coating material	0430 0145	Adapter for pressure probes, 1/2" outer thread, 1/4" inner thread	0699 3127
Extension cable, 5 m long, between plug-in head cable and instrument PUR coating material	0409 0063	Cable, 1.5 m long, connects probe with plug-in head to meas. instrument PUR coating material	0430 0143
Telescopic handle, max. 1 m, for probe with plug-in head cable: 2.5 m long, PUR coating material	0430 0144	Cable, 5 m long, connects probe with plug-in head to measuring instrument PUR coating material	0430 0145
Adapter for surface humidity measurement, for humidity probes Ø 12mm locates damp spots on walls, for example	0628 0012	Connection hose, silicone, 5m long, max. load 700 hPa (mbar)	0554 0440
Cap for bore holes, for humidity probe Ø 12 mm Measures equilibrium moisture in bore holes	0554 2140	Connection hose set, 2 x 1 m, coiled, incl. 1/8" screw connection, pressure-tight up to 20 bar, for probe 0638 1647	0554 0441
testo saline pots for control and humidity adjustment of humidity probes, 11.3 %RH and 75.3 %RH with adapter for humidity probe	0554 0660		

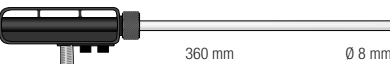
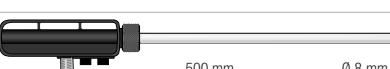
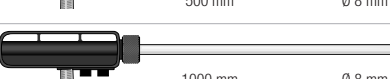
testo 454
Suitable probes at a glance

Vane probes	Illustration	Probe type	Meas. range	Accuracy	Part no.
Vane probe, Ø 12 mm, can be attached to handle 0430 3545 or telescopic handle 0430 0941	 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 0430 3545 handle or 0430 0941 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 +40 m/s) ±(0.2 m/s ±2% of mv) (+40.1 to +50 m/s)	0635 9540
Vane/temperature probe, Ø 25 mm, can be attached to 0430 3545 handle or 0430 0941 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 0430 3545 or telescopic handle 0430 0941, for meas. 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 0430 3545 or telescopic handle 0430 0941, for measurements on ventilation outlets	 Ø 100 mm	Vane	+0.2 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)	 250 mm Ø 16 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

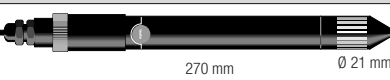
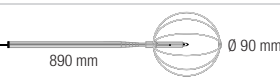

Accessories: Vane probes	Part no.
Professional telescopic handle for plug-in vane probes, max. 1 m long	0430 0941
Extension for telescopic handle, 2 m long please also order the 0409 0063 extension cable	0430 0942
Handle for plug-in vane probes	0430 3545

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	 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 probe, Ø 10 mm, w. telescopic handle, measures air flow in lab fume cupboards to DIN EN 14175	 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

Prandtl's Pitot tubes	Illustration	Accuracy	Part no.
Pitot tube, 300 mm long, stainless steel, for measuring flow velocity	 300 mm Ø 4 mm	Oper. temp. 0 to +600 °C	0635 2245
Pitot tube, 350 mm long, stainless steel, for measuring flow velocity	 350 mm Ø 7 mm	Oper. temp. 0 to +600 °C	0635 2145
Pitot tube, 500 mm long, stainless steel, for measuring flow velocity	 500 mm Ø 7 mm	Oper. temp. 0 to +600 °C	0635 2045
Pitot tube, 1000 mm long, stainless steel, for measuring flow velocity	 1000 mm Ø 7 mm	Oper. temp. 0 to +600 °C	0635 2345


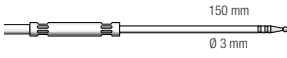
Straight Pitot tubes	Illustration	Probe type	Meas. range	Part no.
Pitot tube, stainless steel, 360 mm long, measures flow speed and temperature, for pressure probes 0638 1347/..1447/..1547	 360 mm Ø 8 mm	Type K (NiCr-Ni)	-40 to +600 °C	0635 2040
Pitot tube, stainless steel, 500 mm long, measures flow speed and temperature, for pressure probes 0638 1347/..1447/..1547	 500 mm Ø 8 mm	Type K (NiCr-Ni)	-40 to +600 °C	0635 2140
Pitot tube, stainless steel, 1000 mm long, measures flow speed and temperature, for pressure probes 0638 1347/..1447/..1547	 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

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 EN 13779 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.
Cable, 1.5 m long, connects probe with plug-in head to meas. instrument PUR coating material	0430 0143

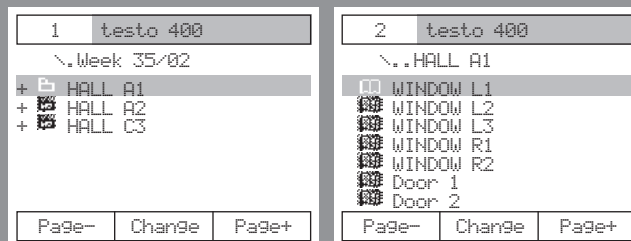
testo 454
Suitable probes at a glance

Stationary probes	Illustration	Meas. range	Accuracy	t99	Part no.
Vane probe, Ø 16 mm, for stationary assembly, 3 m cable (PVC)		+0.4 to +60 m/s Oper. temp. 0 to +70 °C	$\pm(0.2 \text{ m/s} \pm 1\% \text{ of mv})$ (+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	$\pm(0.03 \text{ m/s} \pm 5\% \text{ of mv})$ (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				

structure - measure - print on-site

Structuring measurement data:

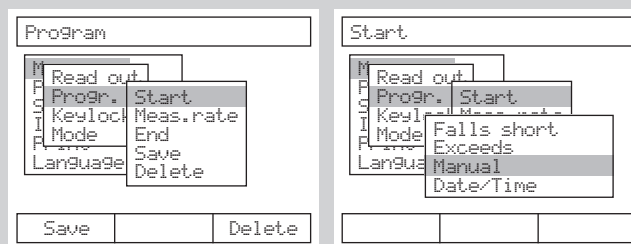
- Readings can be saved at individual locations
 - with guarantee of refinding.
- The "tree structure" - folders, sub-folders and measurement protocols - guarantees an uncomplicated overview.
- Practical additional information such as measurement information or required value input can be saved with 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:

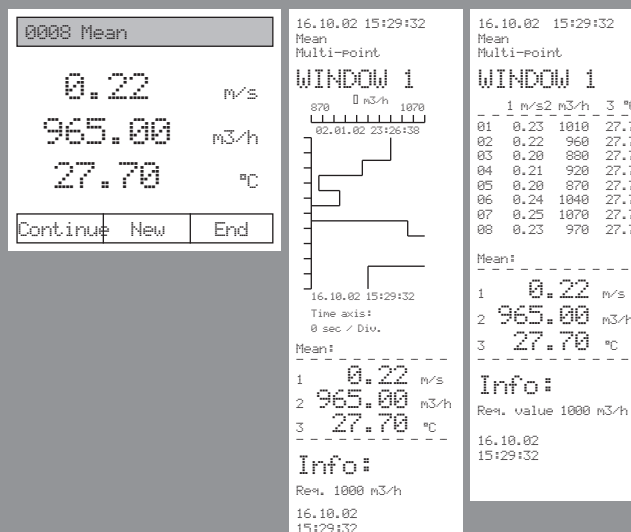
User-friendly data logging, not only for spot checks

- 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

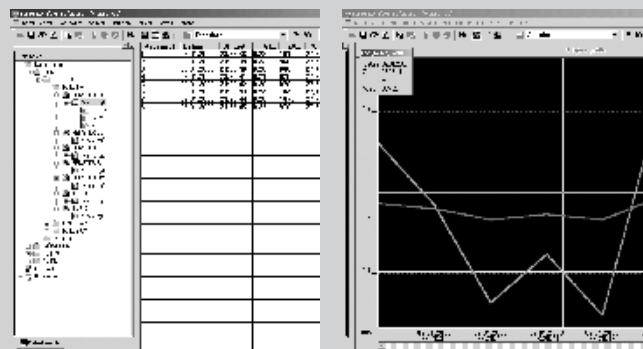
Easy reading management:

- 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.



Accessories

RS232 cable
connects instrument to PC (1.8 m) for data transfer

Part no.

0409 0178

ComSoft 3 - Professional for:

- Monitoring instrument testo 445
- Reference instruments testo 400 and 454

ComSoft 3 - Professional with data management

incl. database, analysis and graphics function, data analysis, trend curve

Part no.
0554 0830

ComSoft 3 - Professional for: testo 454

Incl. database, analysis and graphics function, data analysis, trend curve, RS 232 connection cable

Part no.
0554 0841

Testo fast printer

The universal printer with IRDA and infrared interface saves you time since it stores the print data prior to printing. Data transfer is completed within 2 seconds. The instrument is then immediately ready for operation.

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

Testo fast printer with wireless infrared interface, 1 roll thermal paper and 4 AA batteries

Part no.	0554 0549
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Versatile infrared printer for testo 435, 445, 400

- System compatibility with other Testo measuring instruments (also downward compatibility)
- Fast data transfer, the measuring instrument is ready for use again within 2 sec.
- Fast print function thanks to newest line printer
- Energy-saving Auto-off/Wake-up function
- Testo design with integrated magnetic plate
- Robust housing (adapted to testo 327)
- Mains operation possible (same mains unit as for testo 327/330)



Technical data

Printer type	infrared-controlled thermal printer, adjustable contrast, graphic-capable	Oper. temp.	0 to +50 °C
		Storage temp.	-40 to +60 °C
		Power supply	4 AA batteries 1.5 V (or rechargeables) Mains unit GV/1.2A
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
External fast charger for 1-4 AA rech. batteries, incl. 4 Ni-MH rech. batteries with individual cell charging and charge control display, incl. impulse trickle charging, integrated discharge function, with built-in international mains plug, 100-240 V, 300 mA, 50/60 Hz	0554 0610

CFR 21 Part 11

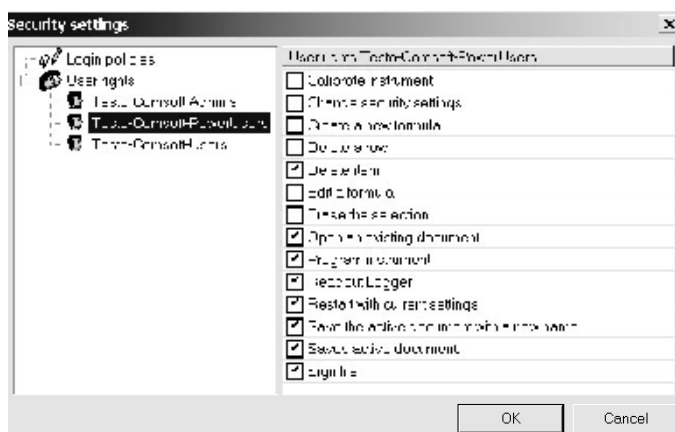
A validation-compatible ComSoft 3.3 Version 21 CFR 11 has been developed especially to manage and file process data. All 21 CFR 11 requirements can be fulfilled if used as part of a cohesive system:

Databus controller with USB connection incl. software ComSoft 3 for requirements according to 21 CFR 11, cable for Testo databus, USB cable and terminal plug


Part no.
0554 0599

Software for requirements according to CFR 21 Part 11 for testo 454
with databus controller

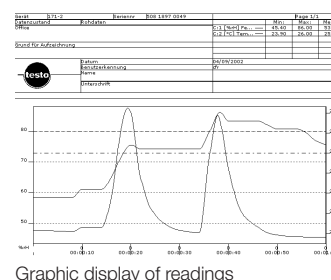
- Identification of damaged or modified raw data
- Recognition of transfer errors using proof totals
- Inactivity lockout to prevent unauthorised access
- Monitors logins and logouts, successful/failed use of digital signatures and modification of raw data with the aid of Audit Trail
- Complete integration in the Windows 2000 security system (certificates, rights management, user and password management, user authentication)
- 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

Instrument: 377A	Serial: 502 560 0075	
Date: Original	Signature: 21010811	Legend:
Reason for issuing:		
	Date: 17.10.2002	
	Measurement:	
	Name: Rüdiger Carpenter	
	Signature:	
G:\Documents and Settings\All Users\WINNT\Documents\Comfort Software Professional\Archives\Films\		

Display: Limit value violation in table format



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, RS232 - 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 data logger. 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		

Additional information at



Testo: At Your Service

Please send for more information:

Monitoring Instruments for Food Production, Transport and Storage
Measurement Engineering for Restaurants, Catering and Supermarkets

Measurement Engineering for Air Conditioning and Ventilation

Measurement Engineering for Heating and Installation

Measurement Solutions for Emissions, Service and Thermal Processes

Measurement Solutions for Refrigeration Technology

Stationary Measurement Solutions for Air Conditioning, Drying, Cleanrooms and Compressed Air

Measurement Solutions for Production, Quality Control and Maintenance

Measurement Solutions for Climate Applications in Industry

Reference Measurement Technology for Industry

Measuring Instruments For Temperature

Measuring Instruments for Humidity

Measuring Instruments For Velocity

Measuring Instruments for Pressure and Refrigeration

Multi-Function Measuring Instruments

Measuring Instruments for Flue Gas and Emissions

Measuring Instruments for RPM, Analysis, Current/Voltage

Measuring Instruments For Indoor Air Quality, Light And Sound

Stationary Measurement Technology Humidity / Differential Pressure / Temperature / Process Displays

Stationary Measurement Technology Compressed Air Humidity / Compressed Air Consumption