



testo 645, thermohygrometer

testo 645

The testo 645 humidity measuring instrument automatically displays the parameters relative humidity, absolute humidity, dew point, degree of humidity, enthalpy and temperature.

Convenient data analysis on your PC with location name.

A wide range of humidity and temperature probes suitable for high temperature measurement to monitoring humidity in compressed air systems are available.

- Channel 1: Temperature probe Type K/J/S, NTC
- Channel 2: Combi-probe humidity/temperature or temperature probe Pt100
- Highly accurate humidity meas. to $\pm 1\%RH$
- Internal data memory
- Convenient data analysis
- TopSafe for tough applications

testo 645

testo 645, humidity/temperature measuring instrument, with TopSafe, battery and calibration protocol

Part no. 0563 6450



Humidity measurement up to $+180^\circ\text{C}$ in drying systems

Humidity probes	Illustration	Meas. range	Accuracy	t ₉₉	Part no.
Standard ambient air probe up to $+70^\circ\text{C}$	 Ø 12 mm	0 to $+100\%RH$ -20 to $+70^\circ\text{C}$	$\pm 2\%RH$ ($+2$ to $+98\%RH$) $\pm 0.4^\circ\text{C}$ (-10 to $+50^\circ\text{C}$) $\pm 0.5^\circ\text{C}$ (remaining range)	12 s	0636 9740 Conn.: Plug-in head, connection cable 0430 0143 or 0430 0145 required
Duct humidity/temperature probe, can be connected to telescopic handle 0430 9715	 180 mm Ø 12 mm	0 to $+100\%RH$ -20 to $+70^\circ\text{C}$	$\pm 2\%RH$ ($+2$ to $+98\%RH$) $\pm 0.4^\circ\text{C}$ (-10 to $+50^\circ\text{C}$) $\pm 0.5^\circ\text{C}$ (remaining range)	12 s	0636 9715 Conn.: Fixed cable, 1.5 m
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	0 to $+100\%RH$ -20 to $+70^\circ\text{C}$	$\pm 2\%RH$ ($+2$ to $+98\%RH$) $\pm 0.4^\circ\text{C}$ (-10 to $+50^\circ\text{C}$) $\pm 0.5^\circ\text{C}$ (-20 to -10.1°C) $\pm 0.5^\circ\text{C}$ ($+50.1$ to $+70^\circ\text{C}$)	15 s	0636 2130 Conn.: Plug-in head, connection cable 0430 0143 or 0430 0145 required
Highly accurate reference humidity/temp. probe incl. cal. cert.	 Ø 21 mm	0 to $+100\%RH$ -20 to $+70^\circ\text{C}$	$\pm 1\%RH$ ($+10$ to $+90\%RH$) $\pm 2\%RH$ (remaining range) $\pm 0.2^\circ\text{C}$ ($+10$ to $+40^\circ\text{C}$) $\pm 0.4^\circ\text{C}$ (remaining range)	12 s	0636 9741 Conn.: Plug-in head, connection cable 0430 0143 or 0430 0145 required
Flexible humidity probe with mini module for meas. e.g. on material testing rigs, module cable length 1500mm, probe tip 50x19x7mm	 1500 mm	0 to $+100\%RH$ -20 to $+125^\circ\text{C}$	$\pm 2\%RH$ ($+2$ to $+98\%RH$) $\pm 0.4^\circ\text{C}$ (-10 to $+50^\circ\text{C}$) $\pm 0.5^\circ\text{C}$ (remaining range)	20 s	0628 0013 Conn.: Plug-in head, connection cable 0430 0143 or 0430 0145 required
Sword probe for measuring humidity and temperature in stacked material	 320 mm 18 mm x 5 mm	0 to $+100\%RH$ -20 to $+70^\circ\text{C}$	$\pm 2\%RH$ ($+2$ to $+98\%RH$) $\pm 0.4^\circ\text{C}$ (-10 to $+50^\circ\text{C}$) $\pm 0.5^\circ\text{C}$ (-20 to -10.1°C) $\pm 0.5^\circ\text{C}$ ($+50.1$ to $+70^\circ\text{C}$)	12 s	0636 0340 Conn.: Plug-in head, connection cable 0430 0143 or 0430 0145 required
High humidity level probe w/ heated sensor element, no humidity on sensor	 300 mm Ø 12 mm	0 to $+100\%RH$ -20 to $+100^\circ\text{C}$	$\pm 2.5\%RH$ (0 to $+100\%RH$) $\pm 0.4^\circ\text{C}$ (-10 to $+50^\circ\text{C}$) $\pm 0.5^\circ\text{C}$ (-20 to -10.1°C) $\pm 0.5^\circ\text{C}$ ($+50.1$ to $+100^\circ\text{C}$)	30 s	0636 2142 Conn.: Plug-in head, connection cable 0430 0143 or 0430 0145 required
Robust high temperature/humidity probe up to $+180^\circ\text{C}$	 300 mm Ø 12 mm	0 to $+100\%RH$ -20 to $+180^\circ\text{C}$	$\pm 2\%RH$ ($+2$ to $+98\%RH$) $\pm 0.4^\circ\text{C}$ ($+0.1$ to $+50^\circ\text{C}$) $\pm 0.5^\circ\text{C}$ (remaining range)	30 s	0628 0021 Conn.: Plug-in head, connection cable 0430 0143 or 0430 0145 required
Flexible humidity probe (does not retain shape) for measurements in inaccessible places	 1500 mm Ø 12 mm	0 to $+100\%RH$ -20 to $+180^\circ\text{C}$	$\pm 2\%RH$ ($+2$ to $+98\%RH$) $\pm 0.4^\circ\text{C}$ ($+0.1$ to $+50^\circ\text{C}$) $\pm 0.5^\circ\text{C}$ (-20 to 0°C) $\pm 0.5^\circ\text{C}$ ($+50.1$ to $+180^\circ\text{C}$)	30 s	0628 0022 Conn.: Plug-in head, connection cable 0430 0143 or 0430 0145 required
Standard pressure dew point probe for measurements in compressed air systems	 300 mm	0 to $+100\%RH$ -30 to $+50^\circ\text{C tpd}$	$\pm 0.9^\circ\text{C tpd}$ ($+0.1$ to $+50^\circ\text{C tpd}$) $\pm 1^\circ\text{C tpd}$ (-4.9 to 0°C tpd) $\pm 2^\circ\text{C tpd}$ (-9.9 to -5°C tpd) $\pm 3^\circ\text{C tpd}$ (-19.9 to -10°C tpd) $\pm 4^\circ\text{C tpd}$ (-30 to -20°C tpd)	300 s	0636 9840 Conn.: Plug-in head, connection cable 0430 0143 or 0430 0145 required
Precision pressure dew point probe for measurements in compressed air systems incl. cert. with test point -40°C tpd	 300 mm	0 to $+100\%RH$ -60 to $+50^\circ\text{C tpd}$	$\pm 0.8^\circ\text{C tpd}$ (-4.9 to $+50^\circ\text{C tpd}$) $\pm 1^\circ\text{C tpd}$ (-9.9 to -5°C tpd) $\pm 2^\circ\text{C tpd}$ (-19.9 to -10°C tpd) $\pm 3^\circ\text{C tpd}$ (-29.9 to -20°C tpd) $\pm 4^\circ\text{C tpd}$ (-40 to -30°C tpd)	300 s	0636 9841 Conn.: Plug-in head, connection cable 0430 0143 or 0430 0145 required
Flexible humidity probe (retains shape) for measurements at inaccessible points	 450 mm Ø 14 mm	0 to $+100\%RH$ -20 to $+125^\circ\text{C}$	$\pm 2\%RH$ ($+2$ to $+98\%RH$) $\pm 0.4^\circ\text{C}$ (-10 to $+50^\circ\text{C}$) $\pm 0.5^\circ\text{C}$ (-20 to -10.1°C) $\pm 0.5^\circ\text{C}$ ($+50.1$ to $+125^\circ\text{C}$)	30 s	0628 0014 Conn.: Plug-in head, connection cable 0430 0143 or 0430 0145 required

The measuring instrument inside TopSafe is waterproof with this probe. Caps for humidity probes, see Ordering data for Accessories

* in the temperature range from $+15^\circ\text{C}$ to $+30^\circ\text{C}$

Further probes see testo 650 (humidity) and testo 950 (temperature)

Sets, practical accessories and technical data, testo 645

Ordering suggestion:

The set for industrial humidity measurement

testo 645, humidity/temperature measuring instrument, with TopSafe, battery and calibration protocol
Robust humidity probe e.g. for measuring equilibrium moisture or for measurements in exhaust ducts to +120 °C
Fast-action surface probe with sprung thermocouple strip, also for uneven surfaces, measurement range short-term to +500 °C, TC Type K
Cable, 1.5 m long, connects probe with plug-in head to meas. instrument
Cable, 1.5 m long, connects probe with plug-in head to meas. instrument
Transport case (plastic) for measuring instrument, probes and accessories
Part no. 0563 6452

Ordering suggestion:

Precision set ($\pm 1\%$ RH) up to ± 0.23 °C

testo 645, humidity/temperature measuring instrument, with TopSafe, battery and calibration protocol
Highly accurate reference humidity/temp. probe incl. cal. cert.
Precision air probe
Cable, 1.5 m long, connects probe with plug-in head to meas. instrument
Cable, 1.5 m long, connects probe with plug-in head to meas. instrument
Transport case (plastic) for measuring instrument, probes and accessories
Part no. 0563 6453

Ordering suggestion:

The set for monitoring humidity in compressed air systems

testo 645, humidity/temperature measuring instrument, with TopSafe, battery and calibration protocol
Standard pressure dew point probe for measurements in compressed air systems
Quick-action surface probe with sprung thermocouple strip, measuring range short-term to +500 °C
Cable, 1.5 m long, connects probe with plug-in head to meas. instrument
Cable, 1.5 m long, connects probe with plug-in head to meas. instrument
Transport case (plastic) for measuring instrument, probes and accessories
Part no. 0563 6454

Technical data

Probe type	Testo humid. sensor, cap.	NTC
Meas. range	0 to +100 %RH	-50 to +150 °C
Temperature		
Accuracy	See probe data	
± 1 digit		
Resolution	0.1 %RH (0 to +100 %RH)	0.1 °C (-50 to +150 °C)
Probe type	Pt100	Type K (NiCr-Ni)
Meas. range	-200 to +800 °C	-200 to +1370 °C
Temperature		
Accuracy	$\pm 0.1\%$ of mv (+200.1 to +800 °C)	$\pm 0.5\%$ of mv (+60 to +1370 °C)
± 1 digit	± 0.2 °C (-200 to +200 °C)	± 0.3 °C (-200 to +59.9 °C)
at +22 °C		
Resolution	0.1 °C (-200 to +800 °C)	0.1 °C (-200 to +1370 °C)
Probe type	Type S (Pt10Rh-Pt)	Type J (Fe-CuNi)
Meas. range	-50 to +1700 °C	-40 to +750 °C
Temperature		

Accessories Transport and protection	Part no.
Transport case (plastic) for measuring instrument, probes and accessories – now larger for safe and orderly storage	0516 0445
Further accessories and spare parts	Part no.
Desk-top power supply with international connection options	0554 1143
9V rech. battery for instrument instead of battery	0515 0025
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
Telescopic handle, 340 - 800 mm long, for 0636 9715 probe	0430 9715
Adapter for surface humidity measurement, for humidity probes \varnothing 12mm locates damp spots on walls, for example	0628 0012
Cap for bore holes, for humidity probe \varnothing 12 mm Measures equilibrium moisture in bore holes	0554 2140
testo saline pots for control and humidity adjustment of humidity probes, 11.3 %RH/75.3 %RH with adapter for humidity probes	0554 0660
Teflon sintered filter, \varnothing 12 mm, for corrosive substances high humidity range (long-term measurements), high velocities	0554 0756
Stainless steel sintered cap, \varnothing 12 mm, is screwed onto humidity probe for measurements at high flow velocities or in contaminated air	0554 0647
Printer and Accessories	Part no.
Testo printer with wireless IRDA and infrared interface, 1 roll of thermal paper and 4 AA batteries	0554 0547
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	Part no.
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
Calibration Certificates	Part no.
ISO calibration certificate humidity: electronic hygrometers; calibration points 11.3 %RH and 75.3 %RH at +25 °C	0520 0006
DKD calibration certificate/humidity: electronic hygrometers; calibration points 11.3%RH and 75.3%RH at +25 °C	

Technical data

Oper. temp.	0 to +50 °C	Weight	255 g
Storage temp.	-20 to +70 °C	Dimensions	215 x 68 x 47 mm
Display	LCD, 4 lines	Material/Housing	ABS
Battery type	Alkali manganese	Warranty	2 years
Battery life	45 h		

Typical battery life: 9 V block (Al-Mn) 20-45 h
With 9 V rech.battery, the number of hours is reduced by a factor of 5
Calculated humidity parameters: td, g/m^3 , g/kg, J/g (pressure compensated)
Mains connection and battery charging in instrument